



**Minnesota Pollution
Control Agency**

520 Lafayette Road North
St. Paul, MN 55155-4194

MS4 SWPPP Application for Reauthorization

for the NPDES/SDS General Small Municipal Separate
Storm Sewer System (MS4) Permit MNR040000
reissued with an effective date of August 1, 2013
Stormwater Pollution Prevention Program (SWPPP) Document

Doc Type: Permit Application

Instructions: This application is for authorization to discharge stormwater associated with Municipal Separate Storm Sewer Systems (MS4s) under the National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) Permit Program. **No fee** is required with the submittal of this application. Please refer to "Example" for detailed instructions found on the Minnesota Pollution Control Agency (MPCA) MS4 website at <http://www.pca.state.mn.us/ms4>.

Submittal: This MS4 SWPPP Application for Reauthorization form must be submitted electronically via e-mail to the MPCA at ms4permitprogram.pca@state.mn.us from the person that is duly authorized to certify this form. All questions with an asterisk (*) are required fields. All applications will be returned if required fields are not completed.

Questions: Contact Claudia Hochstein at 651-757-2881 or claudia.hochstein@state.mn.us, Dan Miller at 651-757-2246 or daniel.miller@state.mn.us, or call toll-free at 800-657-3864.

General Contact Information (*Required fields)

MS4 Owner (with ownership or operational responsibility, or control of the MS4)

*MS4 permittee name: St. Louis County Public Works Department *County: St. Louis
(city, county, municipality, government agency or other entity)

*Mailing address: 4787 Midway Rd.

*City: Duluth *State: MN *Zip code: 55811

*Phone (including area code): 218-625-3830 *E-mail: foldesij@stlouiscountymn.gov

MS4 General contact (with Stormwater Pollution Prevention Program [SWPPP] implementation responsibility)

*Last name: Krasaway *First name: Steve
(department head, MS4 coordinator, consultant, etc.)

*Title: Resident Engineer

*Mailing address: 4787 Midway Rd.

*City: Duluth *State: MN *Zip code: 55811

*Phone (including area code): 218-625-3841 *E-mail: krasaways@stlouiscountymn.gov

Preparer information (complete if SWPPP application is prepared by a party other than MS4 General contact)

Last name: Foster First name: Inga
(department head, MS4 coordinator, consultant, etc.)

Title: Environmental Project Manager

Mailing address: 4787 Midway Rd.

City: Duluth State: MN Zip code: 55811

Phone (including area code): 218-625-3862 E-mail: fosteri@stlouiscountymn.gov

Verification

1. I seek to continue discharging stormwater associated with a small MS4 after the effective date of this Permit, and shall submit this MS4 SWPPP Application for Reauthorization form, in accordance with the schedule in Appendix A, Table 1, with the SWPPP document completed in accordance with the Permit (Part II.D.). ☒ Yes
2. I have read and understand the NPDES/SDS MS4 General Permit and certify that we intend to comply with all requirements of the Permit. ☒ Yes

Certification (All fields are required)

- ☒ Yes - I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted.

I certify that based on my inquiry of the person, or persons, who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

I am aware that there are significant penalties for submitting false information, including the possibility of civil and criminal penalties.

This certification is required by Minn. Stat. §§ 7001.0070 and 7001.0540. The authorized person with overall, MS4 legal responsibility must certify the application (principal executive officer or a ranking elected official).

By typing my name in the following box, I certify the above statements to be true and correct, to the best of my knowledge, and that this information can be used for the purpose of processing my application.

Name: James T. Foldesi, P.E.

(This document has been electronically signed)

Title: Public Works Director/Highway Engineer

Date (mm/dd/yyyy): 11/4/2013

Mailing address: 4787 Midway Rd.

City: Duluth

State: MN

Zip code: 55811

Phone (including area code): 218-625-3830

E-mail: foldesij@stlouiscountymn.gov

Note: The application will not be
processed without certification.

Stormwater Pollution Prevention Program Document

I. Partnerships: (Part II.D.1)

- A. List the **regulated small MS4(s)** with which you have established a partnership in order to satisfy one or more requirements of this Permit. Indicate which Minimum Control Measure (MCM) requirements or other program components that each partnership helps to accomplish (List all that apply). Check the box below if you currently have no established partnerships with other regulated MS4s. If you have more than five partnerships, hit the tab key after the last line to generate a new row.

☐ No partnerships with regulated small MS4s

Name and description of partnership	MCM/Other permit requirements involved
Regional Stormwater Protection Team (RSPT)	MCM 1, MCM 2, MCM 3, MCM 6, Draft Miller Creek TMDL

- B. If you have additional information that you would like to communicate about your partnerships with other regulated small MS4(s), provide it in the space below, or include an attachment to the SWPPP Document, with the following file naming convention: *MS4NameHere_Partnerships*.

File name: StLouisCounty_Partnerships.pdf

II. Description of Regulatory Mechanisms: (Part II.D.2)

Illicit discharges

- A. Do you have a regulatory mechanism(s) that effectively prohibits non-stormwater discharges into your small MS4, except those non-stormwater discharges authorized under the Permit (Part III.D.3.b.)? ☐ Yes ☒ No

1. If **yes**:

- a. Check which *type* of regulatory mechanism(s) your organization has (check all that apply):

☐ Ordinance ☐ Contract language
☐ Policy/Standards ☐ Permits
☐ Rules
☐ Other, explain: _____

- b. Provide either a direct link to the mechanism selected above or attach it as an electronic document to this form; or if your regulatory mechanism is either an Ordinance or a Rule, you may provide a citation:

Citation:

Direct link:

☐ Check here if attaching an electronic copy of your regulatory mechanism, with the following file naming convention: *MS4NameHere_IDDEreg*.

2. If **no**:

Describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, this permit requirement is met:

Policy/Standards: For all illicit discharges, St. Louis County will involve the State Duty Officer in accordance with Minn. Statute 115.061 if the material may cause pollution, may be environmentally damaging, may be hazardous, is petroleum-based, or if there is a pipeline break. Public Works will begin work to formalize the current standard

operating procedure (SOP) in writing beginning winter 2014 and will complete all activities and notify Public Works staff of the procedure within 12 months of the date permit coverage is extended.

Policy/Standards: For direct illicit discharges originating within the county MS4 area, St. Louis County will pursue correction through the "General Requirements for Discharges to Waters of the State, Nuisance Conditions Prohibited" in Minn. Rules 7053.0205 Subp. 2. Public Works will begin work to formalize the current SOP in writing beginning winter 2014 and will complete all activities and notify Public Works staff of the procedure within 12 months of the date permit coverage is extended.

Policy/Standards: For illicit discharges onto St. Louis County right of way (ROW) or property from private property, Public Works will formalize in writing the current SOP of notifying the relevant zoning authority/sanitary authority of the discharge. Public Works will begin work on this item winter 2014 and will complete all activities and notify Public Works staff of the procedure within 12 months of the date permit coverage is extended.

Permits: Public Works will update the existing Transportation, Entrance, and Utility permits which govern construction in the ROW or special use of the road network to meet the "effective regulatory mechanism" standard in the permit support materials. Public Works will begin work on implementation of these items winter 2014 and will complete all activities within 12 months of the date permit coverage is extended.

Contract Language: Public Works will include the effective regulatory mechanism standard language in the 2014 version of the "Standard Construction Specifications" which also governs standards for construction in county ROW. Public Works will begin work on implementation of these items winter 2014 and will complete all activities within 12 months of the date permit coverage is extended.

Construction site stormwater runoff control

- A. Do you have a regulatory mechanism(s) that establishes requirements for erosion and sediment controls and waste controls? ☒ Yes ☐ No

1. If **yes**:

- a. Check which *type* of regulatory mechanism(s) your organization has (check all that apply):

☐ Ordinance ☒ Contract language
☒ Policy/Standards ☐ Permits
☐ Rules
☐ Other, explain: _____

- b. Provide either a direct link to the mechanism selected above or attach it as an electronic document to this form; or if your regulatory mechanism is either an Ordinance or a Rule, you may provide a citation:

Citation:

Direct link:

☒ Check here if attaching an electronic copy of your regulatory mechanism, with the following file naming convention: *MS4NameHere_CSWreg*.

- B. Is your regulatory mechanism at least as stringent as the MPCA general permit to Discharge Stormwater Associated with Construction Activity (as of the effective date of the MS4 Permit)? ☒ Yes ☐ No

If you answered **yes** to the above question, proceed to C.

If you answered **no** to either of the above permit requirements listed in A. or B., describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

- C. Answer **yes** or **no** to indicate whether your regulatory mechanism(s) requires owners and operators of construction activity to develop site plans that incorporate the following erosion and sediment controls and waste controls as described in the Permit (Part III.D.4.a.(1)-(8)), and as listed below:

- | | |
|---|---|
| 1. Best Management Practices (BMPs) to minimize erosion. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 2. BMPs to minimize the discharge of sediment and other pollutants. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 3. BMPs for dewatering activities. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 4. Site inspections and records of rainfall events | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 5. BMP maintenance | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |

6. Management of solid and hazardous wastes on each project site. ☒ Yes ☐ No
7. Final stabilization upon the completion of construction activity, including the use of perennial vegetative cover on all exposed soils or other equivalent means. ☒ Yes ☐ No
8. Criteria for the use of temporary sediment basins. ☒ Yes ☐ No

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

Post-construction stormwater management

- A. Do you have a regulatory mechanism(s) to address post-construction stormwater management activities?
☐ Yes ☒ No

1. If **yes**:

- a. Check which *type* of regulatory mechanism(s) your organization has (check all that apply):

- ☐ Ordinance ☐ Contract language
☐ Policy/Standards ☐ Permits
☐ Rules
☐ Other, explain: _____

- b. Provide either a direct link to the mechanism selected above or attach it as an electronic document to this form; or if your regulatory mechanism is either an Ordinance or a Rule, you may provide a citation:

Citation:

Direct link:

- ☐ Check here if attaching an electronic copy of your regulatory mechanism, with the following file naming convention: *MS4NameHere_PostCSWreg*.

- B. Answer **yes** or **no** below to indicate whether you have a regulatory mechanism(s) in place that meets the following requirements as described in the Permit (Part III.D.5.a.):

1. **Site plan review:** Requirements that owners and/or operators of construction activity submit site plans with post-construction stormwater management BMPs to the permittee for review and approval, prior to start of construction activity. ☒ Yes ☐ No
2. **Conditions for post construction stormwater management:** Requires the use of any combination of BMPs, with highest preference given to Green Infrastructure techniques and practices (e.g., infiltration, evapotranspiration, reuse/harvesting, conservation design, urban forestry, green roofs, etc.), necessary to meet the following conditions on the site of a construction activity to the Maximum Extent Practicable (MEP):
- a. For new development projects – no net increase from pre-project conditions (on an annual average basis) of: ☐ Yes ☒ No
- 1) Stormwater discharge volume, unless precluded by the stormwater management limitations in the Permit (Part III.D.5.a(3)(a)).
 - 2) Stormwater discharges of Total Suspended Solids (TSS).
 - 3) Stormwater discharges of Total Phosphorus (TP).
- b. For redevelopment projects – a net reduction from pre-project conditions (on an annual average basis) of: ☐ Yes ☒ No
- 1) Stormwater discharge volume, unless precluded by the stormwater management limitations in the Permit (Part III.D.5.a(3)(a)).
 - 2) Stormwater discharges of TSS.
 - 3) Stormwater discharges of TP.
3. **Stormwater management limitations and exceptions:**
- a. Limitations
- 1) Prohibit the use of infiltration techniques to achieve the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)) when the infiltration structural stormwater BMP will receive discharges from, or be constructed in areas: ☐ Yes ☒ No
 - a) Where industrial facilities are not authorized to infiltrate industrial stormwater under an NPDES/SDS Industrial Stormwater Permit issued by the MPCA.
 - b) Where vehicle fueling and maintenance occur.

- c) With less than three (3) feet of separation distance from the bottom of the infiltration system to the elevation of the seasonally saturated soils or the top of bedrock.
- d) Where high levels of contaminants in soil or groundwater will be mobilized by the infiltrating stormwater.
- 2) Restrict the use of infiltration techniques to achieve the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)), without higher engineering review, sufficient to provide a functioning treatment system and prevent adverse impacts to groundwater, when the infiltration device will be constructed in areas:
- a) With predominately Hydrologic Soil Group D (clay) soils.
- b) Within 1,000 feet up-gradient, or 100 feet down-gradient of active karst features.
- c) Within a Drinking Water Supply Management Area (DWSMA) as defined in Minn. R. 4720.5100, subp. 13.
- d) Where soil infiltration rates are more than 8.3 inches per hour.
- 3) For linear projects where the lack of right-of-way precludes the installation of volume control practices that meet the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)), the permittee's regulatory mechanism(s) may allow exceptions as described in the Permit (Part III.D.5.a(3)(b)). The permittee's regulatory mechanism(s) shall ensure that a reasonable attempt be made to obtain right-of-way during the project planning process.
4. **Mitigation provisions:** The permittee's regulatory mechanism(s) shall ensure that any stormwater discharges of TSS and/or TP not addressed on the site of the original construction activity are addressed through mitigation and, at a minimum, shall ensure the following requirements are met:
- a. Mitigation project areas are selected in the following order of preference:
- 1) Locations that yield benefits to the same receiving water that receives runoff from the original construction activity.
- 2) Locations within the same Minnesota Department of Natural Resource (DNR) catchment area as the original construction activity.
- 3) Locations in the next adjacent DNR catchment area up-stream
- 4) Locations anywhere within the permittee's jurisdiction.
- b. Mitigation projects must involve the creation of new structural stormwater BMPs or the retrofit of existing structural stormwater BMPs, or the use of a properly designed regional structural stormwater BMP.
- c. Routine maintenance of structural stormwater BMPs already required by this permit cannot be used to meet mitigation requirements of this part.
- d. Mitigation projects shall be completed within 24 months after the start of the original construction activity.
- e. The permittee shall determine, and document, who will be responsible for long-term maintenance on all mitigation projects of this part.
- f. If the permittee receives payment from the owner and/or operator of a construction activity for mitigation purposes in lieu of the owner or operator of that construction activity meeting the conditions for post-construction stormwater management in Part III.D.5.a(2), the permittee shall apply any such payment received to a public stormwater project, and all projects must be in compliance with Part III.D.5.a(4)(a)-(e).
5. **Long-term maintenance of structural stormwater BMPs:** The permittee's regulatory mechanism(s) shall provide for the establishment of legal mechanisms between the permittee and owners or operators responsible for the long-term maintenance of structural stormwater BMPs not owned or operated by the permittee, that have been implemented to meet the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)). This only includes structural stormwater BMPs constructed after the effective date of this permit and that are directly connected to the permittee's MS4, and that are in the permittee's jurisdiction. The legal mechanism shall include provisions that, at a minimum:
- a. Allow the permittee to conduct inspections of structural stormwater BMPs not owned or operated by the permittee, perform necessary maintenance, and assess costs for those structural stormwater BMPs when the permittee determines that the owner and/or operator of that structural stormwater BMP has not conducted maintenance.
- b. Include conditions that are designed to preserve the permittee's right to ensure maintenance responsibility, for structural stormwater BMPs not owned or operated by the permittee, when those responsibilities are legally transferred to another party.
- c. Include conditions that are designed to protect/preserve structural stormwater BMPs and site features that are implemented to comply with the Permit (Part III.D.5.a(2)). If site

☐ Yes ☒ No

☐ Yes ☒ No

☐ Yes ☒ No

☐ Yes ☒ No

☐ Yes ☒ No

☐ Yes ☒ No

☐ Yes ☒ No

☐ Yes ☒ No

☐ Yes ☒ No

☐ Yes ☒ No

☒ Yes ☐ No

configurations or structural stormwater BMPs change, causing decreased structural stormwater BMP effectiveness, new or improved structural stormwater BMPs must be implemented to ensure the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)) continue to be met.

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within twelve (12) months of the date permit coverage is extended, these permit requirements are met:

Public Works has a SOP for inspection and maintenance of St. Louis County's permanent stormwater infrastructure under MCM 3 and MCM 6. Beginning winter 2014, Public Works staff will formalize these SOPs in writing. These procedures will be completed and made available to staff within 12 months of the date permit coverage is extended.

B.2: For linear projects, Public Works will evaluate whether to rely on the 2013 Construction Stormwater Permit standards or the MS4 Permit to meet conditions for post-construction stormwater management. For non-linear redevelopment projects, Public Works will explore the possibility of formally partnering with the City of Duluth to meet these permit requirements in accordance with applicable MS4 redevelopment conditions and City ordinances. Work on both of these items will begin winter 2014 as Public Works staff updates the standard Construction Stormwater SWPPP template, and as staff attends future RSPT meetings with the City of Duluth. Implementation of final decisions on these items will be completed within 12 months of the date permit coverage is extended.

B.3: Public Works will explore and formalize, as needed, policy related to limiting or restricting infiltration in areas that are or may be contaminated, and continue to follow established ROW acquisition procedures to ensure that a reasonable attempt is made to secure right of way adequate to meet permit volume control requirements. Further action on these matters will begin winter 2014 and will be complete within 12 months of the date permit coverage is extended.

B.4: Public Works' policy is to address stormwater volume control on-site. If, however, stormwater cannot be treated on site, Public Works will explore the possibility of formally partnering with the City of Duluth, or other applicable MS4 permittee, to address mitigation in accordance with the permit requirements. Further action on these matters will begin winter 2014 as part of the deeper examination of the 2013 Construction Stormwater Permit.

B.5: Public Works owns the structural stormwater BMPs in St. Louis County's MS4 area. St. Louis County stormwater infrastructure connects with several other MS4s' infrastructure in the Duluth Urbanized Area (DUA), so Public Works will continue to partner with these MS4s through the RSPT to ensure that the DUA stormwater network functions in accordance with the permit. In the event that a public or private entity seeks to construct permanent stormwater infrastructure on county property, Public Works will control such action with the existing Utility Permit for work in the ROW.

III. Enforcement Response Procedures (ERPs): (Part II.D.3)

A. Do you have existing ERPs that satisfy the requirements of the Permit (Part III.B.)? ☒ Yes ☐ No

1. If **yes**, attach them to this form as an electronic document, with the following file naming convention: *MS4NameHere_ERPs*.
2. If **no**, describe the tasks and corresponding schedules that will be taken to assure that, with twelve (12) months of the date permit coverage is extended, these permit requirements are met:

B. Describe your ERPs:

For illicit discharges: Upon identifying an illicit discharge, the county MS4 General Contact will be notified of the finding. The county MS4 General Contact will gather the evidence of the illicit discharge and present it to the appropriate zoning/regulating authority for additional investigation. The zoning/regulating authority will determine any corrective actions necessary and will enforce as required on the responsible party. St. Louis County will request updates from the zoning/regulating authority until the issue is resolved.

For Utility and Entrance Construction Permits: Public Works staff inspect project sites during and after construction and require remedial action of the permittee as needed based on site conditions. The permittee's failure to respond to action needed to secure the site result in either a forfeiture of security monies, or a ban on issuance of further permits.

For construction in county ROW: Public Works' contract documents require that the contractors follow all applicable stormwater regulations. The project engineer issues a verbal warning upon discovery or report of a violation and mandates the remedy and timeline for a resolution. If the contractor fails to respond, the project engineer escalates enforcement with fines and/or monetary penalties in accordance with the contract. If the engineer-issued fine fails to compel compliance, Public Works may report the violation to the appropriate regulatory agency (DNR, Corps of Engineers, MPCA, etc.).

IV. Storm Sewer System Map and Inventory: (Part II.D.4.)

A. Describe how you manage your storm sewer system map and inventory:

St. Louis County Public Works staff inspects a minimum of 20% of the storm sewer system annually and uses an inspection documentation form to record the condition of inspected structures. Based on the results of the inspections, repairs or maintenance activities are scheduled and completed as necessary, typically within the same calendar year as the inspections.

The annual inspection forms are used to update the MS4 GIS storm sewer system map and inventory. The updates to the system are typically completed early in the calendar year (winter) following the inspection activities.

When new stormwater inventory is added to the St. Louis County system, it is surveyed by staff, and added to the GIS storm sewer map. Those structures are included in future inspections, but typically inspection of the new structures is delayed by several years as the structures are fully functional at the time of installation. New structures are added to the map the winter following the installation.

B. Answer **yes** or **no** to indicate whether your storm sewer system map addresses the following requirements from the Permit (Part III.C.1.a-d), as listed below:

1. The permittee's entire small MS4 as a goal, but at a minimum, all pipes 12 inches or greater in diameter, including stormwater flow direction in those pipes. ☒ Yes ☐ No
2. Outfalls, including a unique identification (ID) number assigned by the permittee, and an associated geographic coordinate. ☒ Yes ☐ No
3. Structural stormwater BMPs that are part of the permittee's small MS4. ☒ Yes ☐ No
4. All receiving waters. ☒ Yes ☐ No

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

C. Answer **yes** or **no** to indicate whether you have completed the requirements of 2009 Minnesota Session Law, Ch. 172, Sec. 28: with the following inventories, according to the specifications of the Permit (Part III.C.2.a.-b.), including:

1. All ponds within the permittee's jurisdiction that are constructed and operated for purposes of water quality treatment, stormwater detention, and flood control, and that are used for the collection of stormwater via constructed conveyances. ☒ Yes ☐ No
2. All wetlands and lakes, within the permittee's jurisdiction, that collect stormwater via constructed conveyances. ☒ Yes ☐ No

D. Answer **yes** or **no** to indicate whether you have completed the following information for each feature inventoried.

1. A unique identification (ID) number assigned by the permittee. ☒ Yes ☐ No
2. A geographic coordinate. ☒ Yes ☐ No
3. Type of feature (e.g., pond, wetland, or lake). This may be determined by using best professional judgment. ☒ Yes ☐ No

If you have answered **yes** to all above requirements, and you have already submitted the Pond Inventory Form to the MPCA, then you do not need to resubmit the inventory form below.

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

E. Answer **yes** or **no** to indicate if you are attaching your pond, wetland and lake inventory to the MPCA on the form provided on the MPCA website at: <http://www.pca.state.mn.us/ms4>, according to the specifications of Permit (Part III.C.2.b.(1)-(3)). Attach with the following file naming convention: *MS4NameHere_inventory*. ☐ Yes ☒ No

If you answered **no**, the inventory form must be submitted to the MPCA MS4 Permit Program within 12 months of the date permit coverage is extended.

V. Minimum Control Measures (MCMs) (Part II.D.5)

A. MCM1: Public education and outreach

1. The Permit requires that, within 12 months of the date permit coverage is extended, existing permittees revise their education and outreach program that focuses on illicit discharge recognition and reporting, as well as other specifically selected stormwater-related issue(s) of high priority to the permittee during this permit term. Describe your **current**

educational program, including **any high-priority topics included:**

The RSPT adopted the "Public Education and Outreach Goals and Objectives 2010-2020" in 2009. This policy states that over the ten years from 2010-2020, the RSPT will effectively reach out and educate the public about stormwater impacts and stormwater pollution prevention techniques in accordance with Minnesota and Wisconsin regulations and best practices.

- List the categories of BMPs that address your public education and outreach program, including the distribution of educational materials and a program implementation plan. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the U.S. Environmental Protection Agency's (EPA) *Measurable Goals Guidance for Phase II Small MS4s* (<http://www.epa.gov/npdes/pubs/measurablegoals.pdf>).

If you have more than five categories, hit the tab key after the last line to generate a new row.

Established BMP categories	Measurable goals and timeframes
BMP Unique Identifier 1-A: Deliver and/or assist in the delivery of targeted training and outreach on the identification, reporting, and reduction of illicit discharges and/or illegal dumping sites. See Public outreach and K-12 outreach below for details.	Established several outreach tools and/or trainings per year through the RSPT. See Public outreach and K-12 outreach below for details.
BMP Unique Identifier 1-A: Public outreach at the Living Green Expo, UMD Sustainability Fairs, Arrowhead Home and Builders Show, Harvest Festival and Energy Fair, Izaak Walton League, Science Institute presentation, MN Sea Grant Salute Lake Superior's Sustainable Fisheries event	Distributed hundreds of copies of RSPT-developed educational materials several times per year, presented information about RSPT outreach programs, stormwater, water quality, stream health, and stormwater runoff
BMP Unique Identifier 1-A: K-12 outreach at River Quest, Earth Tracks	Distributed hundreds of copies of RSPT-developed educational materials several times per year, presented information about stormwater, water quality, stream health, and stormwater runoff
BMP Unique Identifier 1-A: WLSSD and RSPT Rain Barrel and Compost Bin Truckload Sale and Watershed Festival	Established one per year with RSPT
BMP Unique Identifier 1-B: Annual public meeting	One per year, typically in the spring, with other RSPT members
BMP Unique Identifier 1-C: Storm water information website	Established and updated semi-annually by RSPT
Duluth News Tribune article about stormwater, flooding, and stormwater impacts	One article published 2012
News feature on Northland Newscenter	One feature aired 2012
BMP categories to be implemented	Measurable goals and timeframes
Increase adult awareness of the sources of stormwater, its environmental, social, and economic impacts; and techniques for reducing runoff and preventing pollutants from entering local streams and rivers.	A %% increase (over baseline) in awareness among (x segments of) adults living in the RSPT service area by December 31, 2020. At the risk of setting a completely arbitrary benchmark, the task force would like to wait to set the percentage until the RSPT completes a thorough and statistically accurate survey of residents' knowledge, attitudes, and perceptions about stormwater.
Continually promote behaviors that reduce stormwater pollution.	A %% increase (over baseline) in awareness among (x segments of) adults living in the RSPT service area by December 31, 2020. At the risk of setting a completely arbitrary benchmark, the task force would like to wait to set the percentage until the RSPT completes a thorough and statistically accurate survey of residents' knowledge, attitudes, and perceptions about stormwater.
Deliver and/or assist in the delivery of targeted training and outreach on the design, installation, operation, and maintenance of construction and post-construction best management practices (BMPs) within the RSPT service area.	At least one outreach tool and/or training per year for the next 10 years.
Popularize low impact design (LID) ideas.	A 15% increase in the use and maintenance of LID techniques within the MS4s by December 31, 2020.
Evaluate the success and effectiveness of public	An annual written evaluation of all public education and outreach

education and outreach, and adjust the approaches as necessary.

categories

3. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

Steve Krasaway, Resident Engineer; Inga Foster, Environmental Program Manager

B. MCM2: Public participation and involvement

1. The Permit (Part III.D.2.a.) requires that, within 12 months of the date permit coverage is extended, existing permittees shall revise their current program, as necessary, and continue to implement a public participation/involvement program to solicit public input on the SWPPP. Describe your current program:

St. Louis County participates in a multi-agency public meeting to update the public on the existing SWPPP and solicit input on the document. This annual meeting typically takes place in the spring of the year, and is usually in partnership with the City of Duluth and Mn/DOT.

2. List the categories of BMPs that address your public participation/involvement program, including solicitation and documentation of public input on the SWPPP. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (<http://www.epa.gov/npdes/pubs/measurablegoals.pdf>). If you have more than five categories, hit the tab key after the last line to generate a new row.

Established BMP categories	Measurable goals and timeframes
BMP Unique Identifier 2-A: Adopt-A-Highway Program	Established and operating
BMP Unique Identifier 2-B: Annual meeting	One per year, typically in the spring, with RSPT members
BMP Unique Identifier 2-B: Annual meeting public notice in the Duluth News Tribune	One per year for at least two weeks prior to the meeting with RSPT members
WLSSD and RSPT Rain Barrel and Compost Bin Truckload Sale and Watershed Festival	Established one per year with RSPT
BMP categories to be implemented	Measurable goals and timeframes
Publish the SWPPP on the St. Louis County website and include contact information to submit comments on the document	By 12/31/2014
Publish the meeting notice on the St. Louis County website	By 12/31/2014
Engage the business community in stormwater pollution prevention	50 RSPT "Stream Partners" by 12/31/2015
Evaluate the success and effectiveness of public education and outreach, and adjust the approaches as necessary.	Citizen surveys on an as-needed basis

3. Do you have a process for receiving and documenting citizen input? ☒ Yes ☐ No

If you answered **no** to the above permit requirement, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, this permit requirement is met:

4. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

Inga Foster, Environmental Project Manager

C. MCM 3: Illicit discharge detection and elimination

1. The Permit (Part III.D.3.) requires that, within 12 months of the date permit coverage is extended, existing permittees revise their current program as necessary, and continue to implement and enforce a program to detect and eliminate illicit discharges into the small MS4. Describe your current program:

Upon identifying an illicit discharge, the county MS4 General Contact will be notified of the finding. The county MS4 General Contact will gather the evidence of the illicit discharge and present it to the appropriate zoning/regulating authority for additional investigation. The zoning/regulating authority will determine any corrective actions necessary and will enforce as required on the responsible party. St. Louis County will request updates from the zoning/regulating authority until the

issue is resolved.

Currently, St. Louis responds to citizen reports of illegally dumped materials in the ROW and partners with the MPCA and Western Lake Superior Sanitary and Sewer District (WLSSD) to ensure that illegally dumped materials are collected in a timely manner and disposed of properly. Also, Public Works staff inventories at least 20% of the stormwater network annually, and during that inspection, assesses the sites for illicit discharges. Public Works staff patrol our MS4 roadways daily, and partners, as needed, with other MS4s, and the MPCA to address discharges in the ROW.

2. Does your Illicit Discharge Detection and Elimination Program meet the following requirements, as found in the Permit (Part III.D.3.c.-g.)?
- a. Incorporation of illicit discharge detection into all inspection and maintenance activities conducted under the Permit (Part III.D.6.e.-f.) Where feasible, illicit discharge inspections shall be conducted during dry-weather conditions (e.g., periods of 72 or more hours of no precipitation). ☒ Yes ☐ No
 - b. Detecting and tracking the source of illicit discharges using visual inspections. The permittee may also include use of mobile cameras, collecting and analyzing water samples, and/or other detailed procedures that may be effective investigative tools. ☒ Yes ☐ No
 - c. Training of all field staff, in accordance with the requirements of the Permit (Part III.D.6.g.(2)), in illicit discharge recognition (including conditions which could cause illicit discharges), and reporting illicit discharges for further investigation. ☐ Yes ☒ No
 - d. Identification of priority areas likely to have illicit discharges, including at a minimum, evaluating land use associated with business/industrial activities, areas where illicit discharges have been identified in the past, and areas with storage of large quantities of significant materials that could result in an illicit discharge. ☐ Yes ☒ No
 - e. Procedures for the timely response to known, suspected, and reported illicit discharges. ☐ Yes ☒ No
 - f. Procedures for investigating, locating, and eliminating the source of illicit discharges. ☐ Yes ☒ No
 - g. Procedures for responding to spills, including emergency response procedures to prevent spills from entering the small MS4. The procedures shall also include the immediate notification of the Minnesota Department of Public Safety Duty Officer, if the source of the illicit discharge is a spill or leak as defined in Minn. Stat. § 115.061. ☐ Yes ☒ No
 - h. When the source of the illicit discharge is found, the permittee shall use the ERPs required by the Permit (Part III.B.) to eliminate the illicit discharge and require any needed corrective action(s). ☐ Yes ☒ No

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

1.2.c, d, e, f, g, h: The county MS4 General Contact will arrange for Public Works staff to be trained in illicit discharge recognition, reporting SOPs, identification of inspection priority areas, ensure that staff are familiar with methods to report illicit discharges and spills, and timely response procedures. This training will take place annually prior to the start of field inspections, or no later than 12 months from the date permit coverage is extended.

3. List the categories of BMPs that address your illicit discharge, detection and elimination program. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (<http://www.epa.gov/npdes/pubs/measurablegoals.pdf>).

If you have more than five categories, hit the tab key after the last line to generate a new row.

Established BMP categories	Measurable goals and timeframes
BMP Unique Identifier 3-A: Inspection of stormwater infrastructure, preferably in dry conditions	Established standard of inspecting at least 20% of the network per year
BMP Unique Identifier 3-A: Report on results of inspection and document findings on inspection forms and GIS coverage	Established reporting procedure for each appurtenance inspected
BMP Unique Identifier 3-A: Respond as needed to repairs and replacements of damaged infrastructure, or illicit discharges	Established and ongoing as needed
BMP Unique Identifier 3-B: Map stormwater conveyance system	Established and ongoing as needed
BMP Unique Identifier 3-C: Map existing structural BMP pollution control devices	Established and ongoing as needed
BMP categories to be implemented	Measurable goals and timeframes
Deliver and/or assist in the delivery of targeted training	At least one outreach tool and/or training per year for the next

and outreach on the identification, reporting, and reduction of illicit discharges and/or illegal dumping sites for temporary and permanent staff in accordance with the permit.	10 years with the RSPT
Publish illicit discharge report contact information on St. Louis County website	Within 12 months of the date permit coverage is extended

4. Do you have procedures for record-keeping within your Illicit Discharge Detection and Elimination (IDDE) program as specified within the Permit (Part III.D.3.h.)? ☐ Yes ☒ No

If you answered **no**, indicate how you will develop procedures for record-keeping of your Illicit Discharge, Detection and Elimination Program, within 12 months of the date permit coverage is extended:

The current record keeping SOP will be formalized in writing and staff will be notified of the procedure, most likely at Public Works' annual spring staff meeting, but no later than 12 months of the date permit coverage is extended.

5. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

Steve Krasaway, Resident Engineer; Inga Foster, Environmental Project Manager

D. MCM 4: Construction site stormwater runoff control

1. The Permit (Part III.D.4) requires that, within 12 months of the date permit coverage is extended, existing permittees shall revise their current program, as necessary, and continue to implement and enforce a construction site stormwater runoff control program. Describe your current program:

Public Works' Utility and Entrance Permits authorize construction in county ROW and require a standard of care from the permittee related to erosion and sediment control on the site during construction. Public Works staff inspect project sites during and after construction and require remedial action of the permittee as needed based on site conditions. The permittee's failure to respond to action needed to secure the site result in either a forfeiture of security monies, or a ban on issuance of further permits.

For construction in county ROW, Public Works' contract documents require that the contractors follow all applicable stormwater regulations. The project engineer issues a verbal warning upon discovery or report of a violation and mandates the remedy and timeline for a resolution. If the contractor fails to respond, the project engineer escalates enforcement with fines and/or monetary penalties in accordance with the contract. If the engineer-issued fine fails to compel compliance, Public Works may report the violation to the appropriate regulatory agency (DNR, Corps of Engineers, MPCA, etc.).

2. Does your program address the following BMPs for construction stormwater erosion and sediment control as required in the Permit (Part III.D.4.b.):

- Have you established written procedures for site plan reviews that you conduct prior to the start of construction activity? ☒ Yes ☐ No
- Does the site plan review procedure include notification to owners and operators proposing construction activity that they need to apply for and obtain coverage under the MPCA's general permit to *Discharge Stormwater Associated with Construction Activity No. MN R100001*? ☒ Yes ☐ No
- Does your program include written procedures for receipt and consideration of reports of noncompliance or other stormwater related information on construction activity submitted by the public to the permittee? ☐ Yes ☒ No
- Have you included written procedures for the following aspects of site inspections to determine compliance with your regulatory mechanism(s):
 - Does your program include procedures for identifying priority sites for inspection? ☒ Yes ☐ No
 - Does your program identify a frequency at which you will conduct construction site inspections? ☒ Yes ☐ No
 - Does your program identify the names of individual(s) or position titles of those responsible for conducting construction site inspections? ☒ Yes ☐ No
 - Does your program include a checklist or other written means to document construction site inspections when determining compliance? ☒ Yes ☐ No
- Does your program document and retain construction project name, location, total acreage to be disturbed, and owner/operator information? ☒ Yes ☐ No
- Does your program document stormwater-related comments and/or supporting information used to determine project approval or denial? ☒ Yes ☐ No
- Does your program retain construction site inspection checklists or other written materials used to document site inspections? ☒ Yes ☐ No

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met.

The Utility and Entrance Permit SOPs will be updated to include written procedures for the receipt and consideration of

noncompliance reports from the public, and outline a response plan. At the same time, the SOPs for these permits will include a discussion of how to prioritize site inspections in addition to Public Works' existing procedure of designating stormwater "Critical Areas" on projects. Work on implementation will begin winter 2014 and will conclude no later than 12 months of the date permit coverage is extended.

- List the categories of BMPs that address your construction site stormwater runoff control program. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (<http://www.epa.gov/npdes/pubs/measurablegoals.pdf>). If you have more than five categories, hit the tab key after the last line to generate a new row.

Established BMP categories	Measurable goals and timeframes
BMP Unique Identifier 4-A: Train appropriate staff in the installation of erosion and sediment control BMPs, site management, and design of SWPPP	Established and ongoing as new staff are hired and certifications require renewal
BMP Unique Identifier 4-B: Update ROW permitting process to address control site runoff	Established and operating
BMP Unique Identifier 4-B.1: Track reports of non-compliance or other construction-related stormwater issues from the public	Established and operating
BMP Unique Identifier 4-C: Emergency response procedure for situations requiring immediate clean up as a result of stormwater run-off.	Partnered with other RSPT members as needed, as in the June 2012 flood, to respond to emergencies in a timely manner
Require SWPPP for land disturbance equal to or greater than 1 acre	Established and as needed per project
Inspect sites in accordance with Construction Stormwater permit and as needed based on site conditions	Each day the inspector is on site
Pursue repair of failed or damaged BMPs, use enforcement tools to compel permit compliance as necessary	Established protocol and as needed per project
Develop boilerplate SWPPP template for the 2008-2013 Construction Stormwater permit	Completed
BMP categories to be implemented	Measurable goals and timeframes
Train appropriate staff in the installation of erosion and sediment control BMPs, site management, and design of SWPPP	Ongoing as certifications require renewal every three years from the University of Minnesota
Develop boilerplate SWPPP template for the 2013-2018 Construction Stormwater Permit	Completed and available to staff on internal server winter 2014

- Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

Steve Krasaway, Resident Engineer; Inga Foster, Environmental Program Manager

E. MCM 5: Post-construction stormwater management

- The Permit (Part III.D.5.) requires that, within 12 months of the date permit coverage is extended, existing permittees shall revise their current program, as necessary, and continue to implement and enforce a post-construction stormwater management program. Describe your current program:

Public Works owns the stormwater network on county property. County staff inspect a minimum of 20% of the stormsewer network in the DUA annually and document conditions for each appurtenance. Repairs, maintenance, or reconstructions are scheduled as needed, typically within the same year as the inspection, following the inspections in the field.

- Have you established written procedures for site plan reviews that you will conduct prior to the start of construction activity? ☒ Yes ☐ No
- Answer **yes** or **no** to indicate whether you have the following listed procedures for documentation of post-construction stormwater management according to the specifications of Permit (Part III.D.5.c.):
 - Any supporting documentation that you use to determine compliance with the Permit (Part III.D.5.a), including the project name, location, owner and operator of the construction activity, any ☒ Yes ☐ No

checklists used for conducting site plan reviews, and any calculations used to determine compliance?

- b. All supporting documentation associated with mitigation projects that you authorize? ☐ Yes ☒ No
- c. Payments received and used in accordance with Permit (Part III.D.5.a.(4)(f))? ☐ Yes ☒ No
- d. All legal mechanisms drafted in accordance with the Permit (Part III.D.5.a.(5)), including date(s) of the agreement(s) and names of all responsible parties involved? ☐ Yes ☒ No

If you answered **no** to any of the above permit requirements, describe the steps that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met.

Public Works owns the stormwater infrastructure on county property. In the event that a public or private entity seeks to construct stormwater infrastructure on county property, Public Works will control the activity through the existing Utility Permit program.

4. List the categories of BMPs that address your post-construction stormwater management program. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (<http://www.epa.gov/npdes/pubs/measurablegoals.pdf>). If you have more than five categories, hit the tab key after the last line to generate a new row.

Established BMP categories	Measurable goals and timeframes
BMP Unique Identifier 5-A: Meet or exceed permit standards for permanent stormwater treatment on all linear projects	Established and as needed per project
BMP Unique Identifier 5-B: Ongoing operation and maintenance of installed post-construction BMPs	Established and as needed. Completed as part of the annual inspection program.

BMP categories to be implemented	Measurable goals and timeframes
Meet or exceed permit standards for permanent stormwater treatment on all linear projects	Address as needed per project

5. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

Steve Krasaway, Resident Engineer

F. MCM 6: Pollution prevention/good housekeeping for municipal operations

1. The Permit (Part III.D.6.) requires that, within 12 months of the date permit coverage is extended, existing permittees shall revise their current program, as necessary, and continue to implement an operations and maintenance program that prevents or reduces the discharge of pollutants from the permittee owned/operated facilities and operations to the small MS4. Describe your current program:

Public Works inspects 20% of the stormwater network annually, and required staff attend workshops/trainings on turf maintenance and salt application with the intent of minimizing impacts to the environment. Annual street sweeping and sediment removal activities are scheduled and completed each spring.

2. Do you have a facilities inventory as outlined in the Permit (Part III.D.6.a.)? ☐ Yes ☒ No
3. If you answered **no** to the above permit requirement in question 2, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, this permit requirement is met:
- A facilities inventory for all county properties in the MS4 permit area will be started winter 2014. The primary resource for this inventory will be the county GIS parcel layer which lists county fee ownership and the DUA boundary. GIS and Public Works staff will work together toward the completion of the inventory. The inventory will be completed on or before 12 months of the date permit coverage is extended.*

4. List the categories of BMPs that address your pollution prevention/good housekeeping for municipal operations program. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. For an explanation of measurable goals, refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (<http://www.epa.gov/npdes/pubs/measurablegoals.pdf>).

If you have more than five categories, hit the tab key after the last line to generate a new row.

Established BMP categories	Measurable goals and timeframes
BMP Unique Identifier 6-A: Road and Bridge maintenance	Established and ongoing
BMP Unique Identifier 6-B: Winter salt/sand operations	Staff attended one salt application techniques workshop to reduce environmental impacts, partnered with RSPT to arrange workshop
BMP Unique Identifier 6-C: Ditch maintenance/cleaning	Currently partnered with MN Sea Grant and UMD NRRI to develop a ditch maintenance handbook, handbook publication dated TBD
BMP Unique Identifier 6-D: Storm sewer maintenance/cleaning	Established and ongoing annually
BMP Unique Identifier 6-E: Spill response and cleanup	Established and ongoing as needed
BMP Unique Identifier 6-F: Hazardous materials handling	Established and ongoing as needed
BMP Unique Identifier 6-G: Construction site erosion and sediment control	Established via MCM 3 and MCM 4 BMPs
Turfgrass maintenance with reduced environmental impacts workshop	Staff attended turfgrass maintenance techniques workshop to reduce environmental impacts, partnered with RSPT to arrange workshop
Street sweeping and sediment removal from sumps	Annually as needed, established through MCM 3
BMP categories to be implemented	Measurable goals and timeframes
Deliver and/or assist in the delivery of targeted training for municipal/MS4 employees on pollution prevention/good housekeeping practices.	At least two trainings per year
Continue annual street sweeping and sediment removal activities	Annually as needed
Create facilities inventory map for the MS4 permit area	Within 12 months of the date permit coverage is extended

5. Does discharge from your MS4 affect a Source Water Protection Area (Permit Part III.D.6.c.)? ☐ Yes ☒ No
- a. If **no**, continue to 6.
- b. If **yes**, the Minnesota Department of Health (MDH) is in the process of mapping the following items. Maps are available at <http://www.health.state.mn.us/divs/eh/water/swp/maps/index.htm>. Is a map including the following items available for your MS4:
- 1) Wells and source waters for drinking water supply management areas identified as vulnerable under Minn. R. 4720.5205, 4720.5210, and 4720.5330? ☐ Yes ☐ No
- 2) Source water protection areas for surface intakes identified in the source water assessments conducted by or for the Minnesota Department of Health under the federal Safe Drinking Water Act, U.S.C. §§ 300j – 13? ☐ Yes ☐ No
- c. Have you developed and implemented BMPs to protect any of the above drinking water sources? ☐ Yes ☐ No
6. Have you developed procedures and a schedule for the purpose of determining the TSS and TP treatment effectiveness of all permittee owned/operated ponds constructed and used for the collection and treatment of stormwater, according to the Permit (Part III.D.6.d.)? ☐ Yes ☒ No
7. Do you have inspection procedures that meet the requirements of the Permit (Part III.D.6.e.(1)-(3)) for structural stormwater BMPs, ponds and outfalls, and stockpile, storage and material handling areas? ☒ Yes ☐ No
8. Have you developed and implemented a stormwater management training program commensurate with each employee's job duties that:
- a. Addresses the importance of protecting water quality? ☐ Yes ☒ No
- b. Covers the requirements of the permit relevant to the duties of the employee? ☐ Yes ☒ No
- c. Includes a schedule that establishes initial training for new and/or seasonal employees and recurring training intervals for existing employees to address changes in procedures, practices, techniques, or requirements? ☐ Yes ☒ No

9. Do you keep documentation of inspections, maintenance, and training as required by the Permit ☒ Yes ☐ No (Part III.D.6.h.(1)-(5))?

If you answered **no** to any of the above permit requirements listed in **Questions 5 – 9**, then describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

Question 6: The county MS4 General Contact will establish a schedule and procedure for evaluating the overall effectiveness of stormwater ponds beginning in winter 2014 with the intent to implement spring/summer 2014. The final schedule will be completed no later than 12 months of the date permit coverage is extended.

Question 8.a, b, c: Training is required for permanent staff, but the MS4 General Contact will develop a training process for temporary summer employees with the intent to implement training spring/summer 2014. The final schedule will be completed no later than 12 months of the date permit coverage is extended.

10. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

Steve Krasaway, Resident Engineer

VI. Compliance Schedule for an Approved Total Maximum Daily Load (TMDL) with an Applicable Waste Load Allocation (WLA) (Part II.D.6.)

- A. Do you have an approved TMDL with a Waste Load Allocation (WLA) prior to the effective date of the Permit? ☐ Yes ☒ No

1. If **no**, continue to section VII.
2. If **yes**, fill out and attach the MS4 Permit TMDL Attachment Spreadsheet with the following naming convention: *MS4NameHere_TMDL*.

This form is found on the MPCA MS4 website: <http://www.pca.state.mn.us/ms4>.

VII. Alum or Ferric Chloride Phosphorus Treatment Systems (Part II.D.7.)

- A. Do you own and/or operate any Alum or Ferric Chloride Phosphorus Treatment Systems which are regulated by this Permit (Part III.F.)? ☐ Yes ☒ No

1. If **no**, this section requires no further information.
2. If **yes**, you own and/or operate an Alum or Ferric Chloride Phosphorus Treatment System within your small MS4, then you must submit the Alum or Ferric Chloride Phosphorus Treatment Systems Form supplement to this document, with the following naming convention: *MS4NameHere_TreatmentSystem*.

This form is found on the MPCA MS4 website: <http://www.pca.state.mn.us/ms4>.

VIII. Add any Additional Comments to Describe Your Program

**EXCERPTED FROM 2013 ST. LOUIS COUNTY PUBLIC WORKS DEPARTMENT
STANDARD CONSTRUCTION SPECIFICATIONS.**

**ST. LOUIS COUNTY SPECIFICATIONS MODIFY AND/OR REPLACE THE 2005
MN/DOT STANDARD SPECIFICATIONS FOR CONSTRUCTION WHICH ARE
EXCERPTED BEGINNING ON PAGE 29 IN THIS DOCUMENT.**

**CS-1 (1701) LAWS TO BE OBSERVED (OFF-RIGHT OF WAY DISPOSAL
AND/OR BORROW SITES)**

The provisions of Mn/DOT 1701 are modified and/or supplemented with the following:

- CS-1.1 All debris, concrete items, sewer and utility pipes not designated for salvage, and other unsuitable items, shall become the property of the Contractor and shall be disposed of off the Right-of-Way in accordance with Mn/DOT 2104.3C. These items shall not be disposed of within the roadbed and shall be removed from the project and recycled or disposed of at a MPCA approved site. The Contractor shall furnish a copy of the MPCA disposal permit to the Engineer.
- CS-1.2 The Contractor will not be permitted to deposit any material in contaminated areas listed on the EPA Superfund List, or in any other areas known to contain contaminated materials. The Contractor shall provide the Engineer with documentation which shows the area is not on the EPA Superfund list.
- CS-1.3 When Contractor operations involve borrow sites and/or disposal of material off County Right of Way, the Contractor shall secure all necessary permits for the sites. The approval and/or permits from all applicable local, state, and federal agencies shall be included in the Contractor's Disposal and Borrow Site Plan. The Contractor shall be responsible for all expenses related to the Disposal and/or Borrow site. No monetary claims or contract extensions due to delays or loss of time for off-site construction activity will be allowed.

Prior to the disposal of any excess grading materials, concrete rubble, bituminous materials, or any other materials requiring disposal, the Contractor shall have on file a written Disposal and Borrow Site Plan with written approval by the Engineer. The written Disposal and Borrow Site Plan must reflect not only the above requirements, but also the following points for areas off St. Louis County Right-of-Way:

- A) Legal permission from the property owner has been obtained;
- B) All required local and county disposal permits have been obtained;
- C) The MPCA has reviewed and granted permits as necessary for solid waste disposal and/or Construction Stormwater NPDES Permit;

- D) The sites meet the requirements of the U.S. Fish and Wildlife Service as noted in Executive Order 11990 and Circular 39, and Section 404 of the Clean Water Act, as verified by field review;
- E) The limits of the borrow and/or disposal areas will be staked by the Contractor so as to accommodate a site review and aid the Contractor in limiting disposal operations so that encroachments do not inadvertently occur.

CS-1.4 Permits and/or approvals are necessary for disposal or borrow activities in the areas defined below as "environmentally sensitive:"

- A) Wetlands, as described in "Wetlands of the United States," Circular 39, published by the U.S. Department of Interior, Fish and Wildlife Service, and Waters of the US pursuant to Section 404 of the Clean Water Act;
- B) 100-year frequency flood plains;
- C) Archaeological or historic sites; See 1701 (LAWS TO BE OBSERVED (CULTURAL RESOURCES)) for specific requirements;
- D) Areas with stability or settlement problems;
- E) Areas with artesian conditions;
- F) Unique animal or plant communities;
- G) Landscapes or geologic formations with exemplary, unique, rare or threatened/endangered characteristics.

CS-1.5 St. Louis County Zoning Ordinance #46, Article 6, Section 26 sets forth performance standards for borrow pits. St. Louis County Borrow Pit Standards, or applicable local Borrow Pit Standards, shall apply on gravel pit areas opened specifically for the project.

CS-1.6 Gravel pit areas opened specifically for the project shall be included in the estimated surface area used to calculate withholding for surface area exposed to probable erosion without the required surface finishing and turf establishment. Application and release of withholdings for these gravel pit areas shall follow the same criteria as for areas within the grading construction limits as specified in MnDOT 2105.5 and 2106.5.

CS-1.7 No direct compensation will be paid for the preparation of an acceptable Disposal and Borrow Site Plan or for review of off-Right of Way borrow and/or disposal sites. The Contractor shall be solely responsible to secure professional services as necessary in regard to review and documentation of the "environmentally sensitive" areas listed above.

CS-1.8 The Contractor is required to present the Disposal and Borrow Site Plan in detail at the Pre-construction Conference.

CS-1.9 When Contractor operations involve borrow sites and/or disposal of material off County Right of Way, the Contractor is advised of the following:

MN Statutes Sections 103G.2212 and 103G.241 stipulate that an agent or employee of another may not:

- 1) drain, excavate, or fill a wetland, wholly or partially; or
 - 2) construct, reconstruct, remove, or make any change in any reservoir, dam, or the course, current, or cross-section of any public water;
- unless the agent or employee has obtained a signed statement from the property owner stating that any permit or wetland replacement plan required for the work has been obtained, or that a permit or replacement plan is not required; AND this statement is mailed to the appropriate office with jurisdiction over the wetland or public water prior to initiating the work.

The "Landowner Statement and Contractor Responsibility For Work in Wetlands or Public Waters" can be found at:

http://www.bwsr.state.mn.us/wetlands/forms/Contractor_Responsibility.doc.

The Contractor shall provide the Engineer with a copy of the completed "Landowner Statement and Contractor Responsibility for Work in Wetlands or Public Waters" for the excavation and/or disposal site prior to initiating the work.

CS-2 (1717) AIR, LAND AND WATER POLLUTION

The provisions of Mn/DOT 1717 are supplemented and/or modified with the following:

CS-2.1 EXTREME WEATHER EVENT

If localized flooding is caused by an extreme weather event and results in discharge into surface water, by deliberate pumping or diverted flow, the Contractor shall provide for end of trench or pipe filtration or treatment systems. The filtration/treatment system shall be capable of preventing visibly turbid discharge from entering surface water. This work shall be completed in accordance with applicable laws pertaining to discharge into surface waters and as directed by the Engineer.

CS-2.2 CONTROL OF WATER WITHIN PROJECT LIMITS

Where water enters the project limits from off site, the Contractor shall segregate off site water from disturbed soil or other sources of sediment or treat the water to meet the standards of Minnesota Rule 7050, Water Quality Standards for Protection of Waters of the State. No payment shall be made for any work or materials needed to meet this requirement.

CS-2.3 DISCOVERY OF CONTAMINATED MATERIALS AND REGULATED WASTES

If during the course of the Project, the Contractor unexpectedly encounters any of the following conditions indicating the possible presence of contaminated soil, contaminated water, or regulated waste, the Contractor shall immediately stop work in the vicinity, notify the Engineer, and request suspension of work in the vicinity of the discovery area, in accordance with

Mn/DOT 1803.4.

A documented inspection and evaluation will be conducted prior to the resumption of work. The Contractor shall not resume work in the suspected area without authorization by the Engineer.

(A) Indicators of contaminated soil, ground water or surface water include, but are not limited to the following:

- (1) Odor including gasoline, diesel, creosote (odor of railroad ties), mothballs, or other chemical odor.
- (2) Soil stained green or black (but not because of organic content), or with a dark, oily appearance, or any unusual soil color or texture.
- (3) A rainbow color (sheen) on surface water or soil.

(B) Indicators of regulated wastes include, but are not limited to the following:

- (1) Cans, bottles, glass, scrap metal, wood (indicators of solid waste and a possible dump).
- (2) Concrete and asphalt rubble (indicators of demolition waste).
- (3) Roofing materials, shingles, siding, vermiculite, floor tiles, transite or any fibrous material (indicators of demolition waste that could contain asbestos, lead or other chemicals).
- (4) Culverts or other pipes with tar-like coating, insulation or transite (indicators of asbestos).
- (5) Ash (ash from burning of regulated materials may contain lead, asbestos or other chemicals).
- (6) Sandblast residue (could contain lead).
- (7) Treated wood including, but not limited to, products referred to as green treat, brown treat and creosote (treated wood disposal is regulated).
- (8) Chemical containers such as storage tanks, drums, filters and other containers (possible sources of chemical contaminants).
- (9) Old basements with intact floor tiles or insulation (could contain asbestos), sumps (could contain chemical waste), waste traps (could contain oily wastes) and cesspools (could contain chemical or oily wastes).

CS-2.4 Mn/DOT 1717.2 A2 is hereby deleted and replaced with the following:

A2 During Construction

The Contractor shall implement the Project's Storm Water Pollution Prevention Plan. The Storm Water Pollution Prevention Plan shall encompass any and all erosion prevention measures, sediment controls, Erosion and Sediment Control Sheets, etc., that, when implemented, will decrease soil

erosion and sediment transport on the project. The Contractor shall schedule and install temporary and permanent sediment and erosion control measures, construct ponds and drainage facilities, finish earth work operations, place topsoil, establish turf, and conduct other Contract work in a timely manner to minimize erosion and sedimentation.

All exposed soil areas with continuous positive slopes that are within 60 m (**200 feet**) of a public water shall have temporary or permanent erosion protection within 24 hours after the construction activity in that portion of the site has temporarily or permanently ceased and connection is established to the public water. All other positive slopes to constructed surface waters, such as permanent storm water treatment ponds, curb and gutter systems, storm sewer inlets, temporary or permanent drainage ditches, or other storm water conveyance systems, shall have temporary erosion protection or permanent cover for the exposed soil areas as soon as practicable but no later than 14 days after construction activity has temporarily or permanently ceased in that area. For those drainage areas that have a discharge point within 1 mile and flows to an impaired or Special Waters shall have temporary erosion protection or permanent cover for the exposed soil areas as soon as practicable but no later than 7 days after construction activity has temporarily or permanently ceased in that area. Impaired and Special Waters are defined as those listed and referenced in the NPDES Permit.

Positive slopes adjacent to public waters and wetlands will be stabilized at the close of each day when weather forecasts for rain that evening, and/or overnight including weekends. Once work is completed it will be stabilized permanently as soon as practical but no later than seven days.

Exposed soil areas do not include; stockpiles or surcharge areas of sand, gravel, aggregate, concrete, bituminous, or road bed and surfacing material. A perimeter sediment barrier may be necessary to minimize loss when these are within the 60 m (**200 feet**) of existing surface waters or the property edge.

The bottom of temporary or permanent drainage ditches or swales constructed to drain water from a construction site must be stabilized with erosion control measures for the last 60 m (**200 feet**), or more when conditions warrant, from the property edge or from the point of discharge to any existing surface water. Stabilization shall be completed within 24 hours after the construction activity in that portion of the ditch has temporarily or permanently ceased. Ditch stabilization will continue concurrently with construction activities but no later than 14 days after construction activities have permanently or temporarily ceased. Any culvert pipe or storm sewer pipe that is within the cumulative distance is not part of this distance. Ditch checks may be provided where necessary to slow water flow and capture sediment.

Temporary or permanent ditches used as treatment systems will not need to be stabilized but must provide the proper Best Management Practices for the treatment system.

Pipe outlets shall be provided with temporary or permanent energy dissipation within 24 hours of connecting the pipe to any constructed or existing surface waters.

The Contractor shall limit the surface area of erodible soil that can be exposed to possible erosion at any one time when the permanent erosion control features are not completed and operative.

All liquid and solid wastes generated by concrete washout operations must be contained and not have the opportunity to come in contact with the surface waters or ground water. This includes the ditches, slopes to ditches, curb and gutter/stormsewer systems, and ponds. Areas where there are sandy soils, karsts, and high ground water the washout facility must have an impermeable liner. Liquid and solid wastes must be disposed of properly. A concrete washout sign must be installed adjacent to each washout facility to notify personnel.

CS-2.5 Mn/DOT 1717.2E is hereby deleted and replaced with the following:

E Site Plans

The Engineer may require the Contractor to submit a site plan, in writing, detailing proposed erosion control and sediment control measures and a schedule indicating starting and completion times for construction operations working in water bodies and/or in direct proximity to waters of the state.

Contractor shall not start work in the affected areas until the schedule and site plan have been accepted by the Engineer and all materials and equipment for the activity are on site.

CS-2.6 The last sentence of Mn/DOT 1717.2G is hereby deleted and replaced with the following:

The Contractor shall respond within 24 hours with sufficient personnel, equipment and/or materials and conduct the required work or be subject to a **\$1,000.00** per calendar day deduction for noncompliance.

CS-3 (1717) NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT

Pollution of natural resources of air, land and water by operations under this Contract shall be prevented, controlled, and abated in accordance with the rules, regulations, and standards adopted and established by the Minnesota

Pollution Control Agency (M.P.C.A.), and in accordance with the provisions of Mn/DOT 1717, these Special Provisions and the following:

- CS-3.1 A copy of the "General Permit Authorization to Discharge Storm Water Associated with Construction Activity Under the National Pollutant Discharge Elimination System (NPDES)/State Disposal System Permit Program" and its provisions is included in Division CA.

The County of St. Louis has applied for and received coverage under the above mentioned permit by signing both the Owner's and Contractor's certification blanks on the permit application. The County shall retain a photocopy of the original permit application. Upon award of the Contract, the County and the Contractor shall execute the Storm Water Permit Notice of Termination/Permit Modification Form (which can be found at <http://www.pca.state.mn.us/publications/wq-strm2-60.pdf>) and the County shall submit it along with a photocopy of the original application to the Minnesota Pollution Control Agency. The Minnesota Pollution Control Agency, upon receipt of the Storm Water Permit Notice of Termination/Permit Modification Form, will amend it to the original permit application thereby making both the County and the Contractor co-permittees for the requirements of the General Permit, "Authorization to Discharge Storm Water."

A copy of the signed Storm Water Permit Notice of Termination/Permit Modification Form must be returned with the Contract and Bond. Submittal of the signed form is mandatory for Contract approval. No work which disturbs soil and/or work in waters of the state will be allowed on this Project until the Storm Water Permit Notice of Termination/Permit Modification Form is in effect and the Department has received the required documentation. There is no fee for the transfer of the permit.

- CS-3.2 All inspection and maintenance forms used on this Project shall be turned over to the Engineer every two weeks for retention in accordance with the permit.

The Contractor shall immediately rectify any shortcomings noted by the Engineer. All meetings with the MPCA, Watershed District, WMO, or any local authority shall be attended by both the Engineer and the Contractor or their representatives. No work required by said entities, and for which the Contractor would request additional compensation from the County, shall be started without approval from the Engineer. No work required by said entities and for which the changes will impact the design or requirements of the Contract documents or impact traffic shall be started without approval from the Engineer.

The Contractor shall immediately notify the Engineer of any site visits by Local Permitting Authorities performed in accordance with Part V.H.

CS-3.3 Emergency Best Management Practices must be enacted to help minimize turbidity of surface waters and relieve runoff from extreme weather events. It is required to notify the MPCA Regional Contact Person within 2 days of an uncontrolled storm water release. The names and phone numbers of the MPCA Regional Contract personnel can be found at: <http://www.pca.state.mn.us/water/stormwater/stormwater-c.html>. The Contractor is reminded that during emergency situations involving uncontrolled storm water releases that the State Duty Officer must be contacted immediately at 1-800-422-0798 or 1-651-649-5451.

CS-3.4 If the Contractor fails to perform the requirements as listed herein, the Engineer will issue a Work Order detailing the required action. The Contractor shall start the- required action within twenty-four (24) hours of receipt of the Work Order and continue the required action until the Project is brought into compliance with the permit. **Failure to perform the required action as specified, shall subject the Contractor to a \$1000.00/calendar day deduction.**

The Contractor shall review and abide by the instructions contained in the permit package. The Contractor shall hold the County harmless for any fines or sanctions caused by the Contractor's actions or inactions regarding compliance with the permit or erosion control provisions of the Contract Documents.

CS-3.5 The Contractor is advised that Section 1 of the NPDES application form makes reference to a Storm Water Pollution Prevention Plan (SWPPP). This Projects' SWPPP is addressed throughout Mn/DOT's Standard Specifications for Construction, as well as this Project's Plan and these Special Provisions. The following table identifies NPDES permit requirements and cross-references where this Contract addresses each requirement.

NPDES Permit Requirements	Cross-Reference within this Contract
Obtain NPDES Permit; Permit Compliance; Submit Notice of Termination	Mn/DOT 1701, 1702; and 1717 Special Provisions: 1717 (Air, Land & Water Pollution), 1717 (National Pollutant Discharge Elimination System (NPDES) Permit)
Certified Personnel in Erosion / Sediment Control Site Management Develop a Chain of Command	Mn/DOT 1506, 1717, and 2573; Special Provisions: 1717 (Air, Land & Water Pollution), and 1717 (National Pollutant Discharge Elimination System (NPDES) Permit)
Project / Weekly Schedule (for Erosion / Sediment Control) Completing Inspection / Maintenance Log / Records	Mn/DOT 1717 and 2573; Special Provisions: 1717 (Air, Land & Water Pollution), and 1717 (National Pollutant Discharge Elimination System (NPDES) Permit); and
Project Specific Construction Staging	The Plans; Mn/DOT 1717; Special Provisions: 1717 (Air, Land & Water Pollution), 1717 (National Pollutant Discharge Elimination System (NPDES) Permit); and 1806 (Determination and Extension of Contract Time)
Temporary Erosion / Sediment Control	The Plans; Mn/DOT 2573 and 2575
Maintenance of Devices / Sediment removal Removal or Tracked Sediment Removal of Devices	The Plans; Mn/DOT 1717 and 2573; Special Provisions: 1514 (Maintenance During Construction), 1717 (Air, Land & Water Pollution), and 1717 (National Pollutant Discharge Elimination System (NPDES) Permit)
Dewatering	Mn/DOT 2105.3B and 2451.3C; May also require DNR Permit
Temporary work not shown in the Plans Grading areas (unfinished acres exposed to erosion)	Mn/DOT 1717, 2573, and 2575; Special Provisions: 1717 (Air, Land & Water Pollution), and 1717 (National Pollutant Discharge Elimination System (NPDES) Permit)
Permanent Erosion / Sediment Control and Turf Establishment	The Plans; Mn/DOT 1717, 2573, and 2575; Special Provisions: 1717 (Air, Land & Water Pollution), and 1717 (National Pollutant Discharge Elimination System (NPDES) Permit)

CS-4 IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

By signing the bid form, the bidder will be deemed to have stipulated as follows:

(1) That any facility to be utilized in the performance of this Contract, unless such Contract is exempt under the Clean Air Act, as amended (42 U.S.C. 1857 et seq., as amended by Pub. L. 91-604), and under the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq., as amended by

Pub. L. 92-500), Executive Order 11738, and regulations in implementation thereof (40 C.F.R. Part 15), is not listed on the U.S. Environmental Protection Agency (EPA) List of Violating Facilities pursuant to 40 C.F.R. 15.20.

(2) That St. Louis County shall be promptly notified prior to Contract award of the receipt by the bidder of any communication from the Director, Office of Federal Activities, EPA, indicating that a facility to be utilized for the Contract is under consideration to be listed on the EPA List of Violating Facilities.

CS-5 (2105) TEMPORARY STREAM DIVERSION SYSTEM

The Temporary Stream Diversion System shall be constructed in accordance with the applicable details as shown in the Plan and the following:

- CS-5.1 This work shall consist of construction of a Temporary Stream Diversion System to facilitate construction and/or repair of the structure(s).
- CS-5.2 The Contractor shall submit a site plan for the Temporary Stream Diversion System to the Engineer for approval a minimum of 5 days prior to starting construction.
- CS-5.3 Preparation of the site plan, maintenance of the Temporary Stream Diversion System, and any repairs or modifications made necessary by inadequate design or unexpected rainfall events shall be considered incidental.
- CS-5.4 The Contractor's stream diversion method shall comply with all laws, requirements, and approvals applicable to the project.
- CS-5.5 Stream flow shall be maintained at all times. At no time shall the stream flow be interrupted or dammed.
- CS-5.6 The stream diversion system shall be sized to adequately convey a 2-year, 24-hour rainfall event.
- CS-5.7 Site dewatering to facilitate construction shall not satisfy the Temporary Stream Diversion System requirements.
- CS-5.8 Temporary Stream Diversion Systems will be required for the structure(s) as indicated on the Plans.
- CS-5.9 Payment per Lump Sum shall be compensation in full for all labor, equipment, and materials required for installation, maintenance, removal of the temporary system. No payment and a \$1,000 per day penalty shall be made in the event that the requirements above are not satisfied. In the event that the Engineer and Contractor determine that a Temporary Stream Diversion System is not necessary and it is not constructed, no payment shall be made.

CS-6 **(2573) STORM WATER MANAGEMENT**

The provisions of Mn/DOT 2573 are supplemented and/or modified with the following:

CS-6.1 Bidders are advised that payment for furnishing and installing silt fence are for the initial installation only. Any replacement components as may be necessary to maintain the fence in a functional condition, to the satisfaction of the Engineer, during the tenure of this Contract, shall be furnished, installed and maintained at the Contractor's own expense.

CS-6.2 Temporary erosion control items are the responsibility of the Contractor. Subcontracting any or all of the erosion control items will not negate the prime Contractor's responsibility to ensure quality and timely installation, maintenance and removal or erosion control measures as per Mn/DOT 2573.

CS-6.3 The second paragraph of Mn/DOT 2573.3A1 Erosion Control Supervisor, is revised to read as follows:

The Erosion Control Supervisor shall be a responsible employee of the prime Contractor and/or duly authorized by the prime Contractor to represent the prime Contractor on all matters pertaining to the NPDES construction stormwater permit compliance. The Erosion Control Supervisor shall have authority over all Contractor operations which influence NPDES permit compliance including grading, excavation, bridge construction, culvert installation, utility work, clearing/grubbing, and any other operation that increases the erosion potential on the Project. In addition, the Erosion Control Supervisor shall **implement the Contractor's quality control program and other provisions in accordance with 1717.2** and be available to be on the Project within 24 hours at all times from initial disturbance to final stabilization as well as perform the following duties:

CS-6.4 Mn/DOT 2573.3 A2, Construction of Temporary Storm Water Basins, is revised to read as follows:

Temporary storm water basins shall be constructed concurrently with the start of soil disturbing activities whenever practicable. The basins must be made fully functional and have storm water runoff from the localized watershed directed to the basins. The exposed sideslopes of the basins must be mulched and/or seeded within the time periods as set forth in 1717, or as directed by the Engineer.

CS-6.5 The second paragraph of Mn/DOT 2573.3 A5, Vehicle Tracking Onto Paved Surfaces, is revised to read as follows:

The Contractor is responsible for insuring paved streets are clean at the end of each working day or more often as necessary to provide safety to the traveling public. Tracked sediment on paved surfaces must be removed by the Contractor within 24 hours of discovery, in accordance with 1717.2. Payment for street sweeping to provide safe conditions for the traveling public, environmental reasons or regulatory requirements shall be as provided in accordance with 1514.

- CS-6.6 The first sentence of Mn/DOT 2573.3E2 is revised to read as follows:

The bioroll shall be installed and anchored with wood stakes. The stakes shall be at a minimum nominally 25 mm x 50 mm (**1 inch x 2 inch**) and a minimum of 400 mm (**16 inches**) long with a pointed end.

- CS-6.7 The first paragraph of Mn/DOT 2573.3J Filter Log Installation, is revised to read as follows:

J Filter Log Installation

Filter logs shall be placed in accordance with the Plan. Straw and wood fiber filter logs shall be staked in place with wood stakes. Wood stakes shall be at a minimum 25 x 51 mm (**1 x 2 inch**) nominal size by 400 mm (**16 inches**) long. The stakes shall be driven through the back half of the log at an angle of approximately 45 degrees with the top of the stake pointing upstream. When more than one log is needed for length, the ends shall be overlapped 150 mm (**6 inches**) with both ends staked. Staking shall be every 0.3 m (**1 foot**) along the log unless precluded by paved surface or rock.

- CS-6.8 Mn/DOT 2573.5 Basis of Payment, is revised to read as follows:

Payment for storm water management and sediment control items will be compensation in full for all labor, materials, equipment, and other incidentals necessary to complete the work as specified, including the costs of maintenance and removal as required by the Contract. The Contractor will receive compensation at the appropriate Contract prices, or in the absence of a Contract bid price, according to the following unit prices, or in the absence of a Contract price and unit price, as Extra Work. The provisions of 1903 are modified to the extent that the Department will not make a price adjustment in the event of increased or decreased quantities of temporary erosion control items.

- CS-6.9 Mn/DOT 2573.5 E, Unit Prices, is deleted.

CS-7 (2575) CONTROLLING EROSION AND ESTABLISHING VEGETATION

The provisions of Mn/DOT 2575 are hereby modified and/or supplemented with the following:

CS-7.1 Permanent erosion control items are the responsibility of the Contractor. Subcontracting any or all of the erosion control items will not negate the prime Contractor's responsibility to ensure quality and timely installation, maintenance and removal of erosion control measures as per Mn/DOT 2575.

CS-7.2 Mn/DOT 2575.3D paragraph 2 and table 2575-2 are hereby deleted and replaced with the following:

The Contractor shall sow the seed uniformly at the rate of application specified in Table 3876-5.

CS-7.3 Mn/DOT 2575.4D is hereby deleted and replaced with the following:

D Seed

When a bulk rate seed mixture is specified as shown in table 3876-5, the measurement will be made on that bulk mass. When a PLS rate seed mixture is specified as shown in table 3876-5, the measurement will be made on the PLS mass.

CS-7.4 Mn/DOT 2575.5C is hereby deleted and replaced with the following:

C Seed

When a seed mixture is specified at a bulk rate as shown in table 3876-5, the payment will be made on that bulk mass. When a seed mixture is specified at a PLS rate as shown in table 3876-5, the payment will be made on the PLS mass.

Payment for seed not meeting germination and purity or PLS requirements of 3876 shall be subject to 1503. When components are missing from the specified mixture the affected seeded areas shall be reseeded with the missing components by the Contractor at no additional cost to the Department.

CS-7.5 The applicable portions of Mn/DOT 2575.3I, I1 and I2 shall be modified to meet the following:

All sod shall be stapled or staked to the satisfaction of the Engineer. Any stapling or staking required will be incidental work and no direct compensation will be made.

CS-8 (3861) PLANT STOCK

The provisions of Mn/DOT 3861 are supplemented and/or modified with the following:

CS-8.1 The third to last paragraph of Mn/DOT 3861.3 Sampling and Inspection, is revised to read as follows:

During the spring planting season, coniferous plants that have candled out (put out new growth) while being stored in a holding bin may be planted, however, coniferous plants that are dug after candling out will be rejected. Coniferous trees not fully branched from bottom to top will be rejected. Only coniferous trees with buds or new growth at the terminal ends of branches shall be accepted, provided the tree meets the dimensional requirements defined in the current edition of the "Inspection and Contract Administration Manual for Mn/DOT Landscape Projects". Sheared or previously de-budded conifers may have enlarged trunk growth that is out of balance with a typical transplanted root system that is now too small. Therefore, previously sheared or de-budded coniferous trees will be subject to the minimum trunk caliper to root ball size relationship for deciduous trees as defined in the current edition of the "Inspection and Contract Administration Manual for Mn/DOT Landscape Projects". Pine trees shall have a terminal leader bud and terminal leaders shorter than 500 mm (**18 inches**) in length. A new central leader must be trained in conifers delivered with multiple or missing leaders.

CS-8.2 The following is added to 3861.2H:

All trees shall be transported under cover to the site to protect the trees from wind damage. If the trees arrive on site with out any transport cover (tarps or other enclosure) they shall be immediately rejected.

CS-9 (3876) SEED

The provisions of Mn/DOT 3876 are supplemented and/or modified with the following:

CS-9.1 The second paragraph of Mn/DOT 3876.1 is hereby deleted and replaced with the following:

Pure live seed (PLS) is the percent of seed germination plus dormant and/or hard seed times the percent of seed purity of each species divided by 100.

CS-9.2 Mn/DOT 3876.2A General Requirements is hereby deleted and replaced with the following:

A General Requirements

All seed lots shall conform to the latest seed law of the State (Minnesota Statutes 21.80-21.91, last revised 8/2/06), and any applicable federal regulations, including those governing labeling and weed seed tolerances. Seed lots sold or offered for sale in the state of Minnesota are subject to inspection, sampling, and testing for verification of label claims and compliance with the Minnesota Seed Law by the Department of Agriculture (M.S. 18J.04). Tolerances for germination and purity factors will be applied as

established in Rules 1510.0050, 1510.0060, 1510.0070, 1510.0080, 1510.0090 and 1510.0100 to seed lots sampled and tested by official methods. For all seed used in Mn/DOT mixes or projects, tests for viability (including germination and TZ tests) are valid for 12 months from the test date, exclusive of the month the test was completed. Seed shall be installed while tests are still valid.

All legume seed, including native legumes, shall have been pre-inoculated with the proper bacterial culture for the species being inoculated and with the bacteria culture designed for this purpose (pre-inoculation), in the manner and within the time specified by the manufacturer.

A1 Labeling

Contractor shall supply seed that is labeled according to the labeling requirements for agricultural seed as set forth in the Minnesota Seed Law, section 21.82. The Contractor shall supply seed that also contains the following information:

- a) County of genetic origin for each native component (List at least two counties for germplasm comprising accessions from multiple counties)
- b) PLS percent for each mix component (Purity x Total Germination and Hard or Dormant Seed/100) for each mix component **(For PLS component of mix's)**
- c) Total PLS weight for the bag. The tag shall identify this as the pay item. **(For PLS component of mix's)**
- d) Total bulk weight for the bag
- e) Area covered by the amount of seed in the bag when applied at the rate specified for the mix
- f) All information pertaining to individual components in a mix is required for all components, including those that constitute less than 5% of the total mix.

Tags must not be hand written. If any of the above mentioned information is not included on the tag the material will be subject to specification 1503. When multiple bags are required to keep certain species or groups of species separate for the purpose of seeding those bags may be placed inside of a larger bag as long as each bag is labeled separately and the outer bag is labeled with the name of the mix.

Each package of seed must include a "Certified Vendor" tag that is issued by Mn/DOT Erosion Control unit. This will indicate that the seed has come from a Mn/DOT Approved Seed Vendor as described in 3876.3.

A2 Seed Cleaning

Contractor shall use seed that has been cleaned to an extent sufficient to allow its passage through appropriate seeding equipment. Seed of introduced species must be suitable for use in conventional seeders. Seed of native species must be suitable for use in native seed drills without plugging up the

boxes, drop tubes, or planting units of the seed drills. Contractor shall not use seed that has been conditioned so much that it suffers reduced viability as a result.

A3 Substitutions

Alternate species or germplasm may only be used by requesting permission from the Office of Environmental Services Turf and Erosion Control Engineering Unit. Requests for permission must include written proof from three potential suppliers that the specified germplasm is not available. Approved substitutions will be named in a memo at the time they are approved. All currently approved substitutions will be posted on the Office of Environmental Services Erosion Control Unit website. Use of germplasm not listed herein will be considered unacceptable and will be subject to 1503.

A4 Requirements for seed of native species

Contractor shall supply and plant all seed in the 300 series mixes as pure live seed (PLS). This includes the cover crop, grass, sedge, and forb components. All seed in the cover crop component of mixes in the 300 series must be certified by the Minnesota Crop Improvement Association (MCIA) or the appropriate seed certifying agency in the seed's state of origin, if other than Minnesota.

All native seed used in mixes in the 300 series shall be certified by the Minnesota Crop Improvement Association (MCIA) in the Source Identified class. The genetic origin for this seed shall be within Minnesota or eastern North Dakota, eastern South Dakota, northern Iowa, or western Wisconsin.

Source Identified seed shall be accompanied by the appropriate quality mark documentation from the MCIA, in the form of a MCIA-labeled yellow tag or certification certificate. County of genetic origin shall be clearly identified on the seed label for all native seed. Selected class and Tested class germplasm of native species listed in Table 3876-1 located on the website of the Office of Environmental Services Erosion Control unit may be used in 100 and 200 series seed mixtures.

If a specified species or germplasm is not available, substitutions will be granted for native seed in the 300 series mixes according to the following order of preference:

- 1) First preference, MCIA certified Source Identified class with a genetic origin in Minnesota or eastern North Dakota, eastern South Dakota, northern Iowa, or western Wisconsin
- 2) Second Preference: Source Identified seed certified by a seed certifying agency other than MCIA but with a genetic origin in Minnesota or eastern North Dakota, eastern South Dakota, northern Iowa, or western Wisconsin
- 3) Third Preference: Certified seed of varieties/germplasm listed in Table 3876-1.

4) Fourth Preference: Wild Type from Minnesota or eastern North Dakota, eastern South Dakota, northern Iowa, or western Wisconsin. Wild type seed is defined as seed of a local or regional ecotype that has originated from remnant native stands and that has not undergone any intentional selection process.

CS-9.3 Mn/DOT Table 3876-1 is hereby deleted and replaced with the following:

<p align="center">TABLE 3876-1 NATIVE GRASSES SEED COUNTS AND ACCEPTABLE GERmplasm</p>			
Trade Name	Scientific Name+	Acceptable Varieties/Germplasm*	Seeds Per Pound
Big Bluestem	<i>Andropogon gerardi</i>	Bonilla, Bison	131,200
Sideoats Grama	<i>Bouteloua curtipendula</i>		96,000
Blue Grama	<i>Bouteloua gracilis</i>		640,000
Fringed Brome	<i>Bromus ciliatus</i>		160,000
Kalm's Brome	<i>Bromus kalmii</i>		128,000
Hairy wood chess	<i>Bromus purgans</i>		121,600
Buffalo grass	<i>Buchloe dactyloides</i>		51,200
Blue-joint grass	<i>Calamagrostis Canadensis</i>		3,360,000
Bottle Brush Sedge	<i>Carex comosa</i>		384,000
Tussock Sedge	<i>Carex stricta</i>		848,000
Fox Sedge	<i>Carex vulpinoidea</i>		1,440,000
Canada Wild Rye	<i>Elymus canadensis</i>	Mandan	67,200
Bottle brush grass	<i>Elymus hystrix</i>		75,200
Slender Wheat Grass	<i>Elymus trachycaulus</i>	Revenue	135,000
Virginia Wild Rye	<i>Elymus virginicus</i>		62,400
Western Wheat Grass	<i>Elytrigia smithii</i>		113,600
Reed Manna Grass	<i>Glyceria grandis</i>		1,280,000
Fowl Manna Grass	<i>Glyceria striata</i>		2,560,000
Common rush	<i>Juncus effusus</i>		16,000,000
June Grass	<i>Koeleria macrantha</i>		2,400,000
Switch Grass	<i>Panicum virgatum</i>	Forestburg, Dacotah	224,000
Fowl Bluegrass	<i>Poa palustris</i>		2,080,000
Canada Bluegrass	<i>Poa compressa</i>		2,400,000
Little Bluestem	<i>Schizachyrium scoparium</i>	Itasca Germplasm	140,800
Green Bulrush	<i>Scirpus atrovirens</i>		2,240,000
Wool-grass	<i>Scirpus cyperinus</i>		2,880,000
Soft-stem Bulrush	<i>Scirpus validus</i>		496,000
Indian Grass	<i>Sorghastrum nutans</i>	Tomahawk	132,800
Prairie Cordgrass	<i>Spartina pectinata</i>	Red River Germplasm	105,600
Rough Dropseed	<i>Sporobolus asper</i>		480,000
Sand Dropseed	<i>Sporobolus cryptandrus</i>		3,200,000
Prairie Dropseed	<i>Sporobolus heterolepsis</i>		224,000
Green Needle Grass	<i>Stipa viridula</i>		120,000
<p>* Varieties listed are approved for use in 100 and 200 series mixes. Their substitution for MCIA Source Identified seed in 300 series mixes is only allowed upon satisfaction of the requirements of 3876.2 A5. When multiple varieties are listed for a single species, they are listed in order of preference.</p>			

CS-9.4 Delete Mn/DOT 3876.2B Requirements for Native Grasses, Sedges, Rushes

(label and paragraphs) and replace with:

B Requirements for Native Grasses, Sedges, and Rushes

Table 3876-1 (Keep table 3876-1)

- CS-9.5 Delete Mn/DOT 3876.2E Requirements for Native Forbs (Wildflowers): (label and paragraphs) and replace with:

E Requirements for Native Forbs (Wildflowers) Table 3876-4

(Keep table 3876-4)

- CS-9.6 Mixtures 260 and 270 in Mn/DOT Table 3876-5 are hereby deleted and replaced with the following:

Mixture: 260			
Common Name	Bulk Rate		% of Mix Component
	kg/ha	lb/ac	
Bluegrass, Kentucky "Certified Park"	35.8	40	32.0
Bluegrass, Canada	11.2	12.5	10.0
Bluegrass, Kentucky - Low Maintenance ¹	33.6	37.5	30.0
Fescue, hard	9.0	10	8.0
Rye-grass, perennial	22.4	25	20.0
GRAND TOTALS:	112	125	100.0
¹ Any accepted low maintenance Kentucky Bluegrass Except "Park" <i>Purpose: Commercial Turf</i>			

Mixture: 270			
Common Name	Bulk Rate		% of Mix Component
	kg/ac	lb/ac	
Bluegrass, Kentucky - Elite	33.6	37.5	25.0
Bluegrass, Kentucky - Improved	33.6	37.5	25.0
Bluegrass, Kentucky - Low Maintenance	33.6	37.5	25.0
Red fescue, creeping	10.8	12	8.0
Rye-grass, perennial	22.8	25.5	17.0
GRAND TOTALS:	134.4	150	100.0
<i>Purpose: Residential Turf</i>			

CS-9.7 The 300 series mixes from Mn/DOT Table 3876-5 are hereby deleted and replaced with the following:

Table 3876-5

Mixture: 310			
Common Name	PLS Rate		% of Mix Component
	kg/ha	lb/ac	
Bluestem, big	2.8	2.5	25.0
Indian grass	2.8	2.5	25.0
Wild-rye, Virginia	2.2	2.0	20.0
Switch grass	0.6	0.5	5.0
Blue-joint grass	0.3	0.25	2.5
Green bulrush	0.3	0.25	2.5
Wool grass	0.3	0.25	2.5
Giant bur reed	0.3	0.25	2.5
Cordgrass, prairie	1.7	1.5	15.0
Grass Totals:	11.3	10.0	100.0
	kg/ha	lb/ac	
Winter Wheat*	62.7	56.0	80.0
Rye-grass, annual	12.5	11.2	16.0
Wheatgrass, slender	3.1	2.8	4.0
Cover Crop Totals:	78.3	70	100.0
Wet Forbs Mixture (Table 3876-6)	2.2	2.0	100.0
GRAND TOTALS:	91.8	82.0	100.0
*Oats to be substituted for spring plantings			
Purpose: Native mix for wetter areas. Infiltration ponds, dry ponds, wet ditches. Tall height.			

Mixture: 325			
Common Name	PLS Rate		% of Mix Component
	kg/ha	lb/ac	
Bluestem, big	1.7	1.5	15.0
Fringed brome	1.7	1.5	15.0
Wheat grass, slender	1.7	1.5	15.0
Virginia wild-rye	1.7	1.5	15.0
Switch grass	0.6	0.5	5.0
Fowl bluegrass	1.7	1.5	15.0
Indian grass	1.7	1.5	15.0
Prairie cord grass	0.6	0.5	5.0
Grass Totals:	11.4	10.0	100.0
Common Name	PLS Rate		% of Mix Component
	kg/ha	lb/ac	
Blue-joint grass	0.22	0.2	10.0
Bottlebrush sedge	0.34	0.3	15.0
Tussock sedge	0.22	0.2	10.0
Fox sedge	0.22	0.2	10.0
Reed manna grass	0.22	0.2	10.0
Fowl manna grass	0.22	0.2	10.0
Green bulrush	0.22	0.2	10.0
Wool grass	0.22	0.2	10.0
Soft-stem bulrush	0.34	0.3	15.0
Sedge Totals:	2.22	2.0	100.0
Common Name	PLS Rate		% of Mix Component
	kg/ha	lb/ac	
Winter Wheat*	61.6	56	80.0
Rye-grass, annual	12.3	11.2	16.0
Wheatgrass, slender	3.1	2.8	4.0
Cover Crop Totals:	77	70	100.0
Wet Forbs Mixture (Table 3876-6)	2.2	2.0	100.0
GRAND TOTALS:	92.8	84.0	100.0
*Oats to be substituted for spring plantings			
Purpose: Native sedge/prairie meadow mix. Reaches a height of 915 mm to 1220 mm (36 to 48 inches). Developed for use on hydric soils and for wetland restoration.			

Mixture: 328			
Common Name	PLS Rate		% of Mix Component
	kg/ha	lb/ac	
Bluestem, big	2.2	2	12.5
Brome, fringed	2.2	2	12.5
Wild-rye, Virginia	4.4	4	25.0
Switchgrass	1.1	1	6.3
Bluegrass, fowl	5.5	5	31.2
Indian grass	2.2	2	12.5
Grass Totals:	17.6	16.0	100.0
Common Name	PLS Rate		% of Mix Component
	kg/ha	lb/ac	
Winter Wheat*	61.6	56.0	80.0
Rye-grass, annual	12.3	11.2	16.0
Wheatgrass, slender	3.1	2.8	4.0
Cover Crop Totals:	77	70	100.0
Common Name	PLS Rate		% of Mix Component
	kg/ha	lb/ac	
Milkweed, marsh	0.33	0.3	15.0
Prairie clover, purple	0.33	0.3	15.0
Tic-trefoil, showy	0.33	0.3	15.0
Sunflower, early	0.33	0.3	15.0
Black-eyed Susan	0.55	0.5	25.0
Vervain, blue	0.33	0.3	15.0
Economy Forbs Totals:	2.2	2.0	100.0
GRAND TOTALS:	96.8	88.0	100.0
*Oats to be substituted for spring plantings			
Purpose: Native mix for infiltration ponds, dry ponds, temporary wet ditches. Tall height.			

Mixture: 330			
Common Name	PLS Rate		% of Mix Component
	kg/ha	lb/ac	
Grama, sideoats	3.4	3.0	21.5
Grama, blue	2.8	2.5	18.0
Bluestem, little	3.9	3.5	25.0
June grass	1.1	1.0	7.0
Dropseed, sand	1.1	1.0	7.0
Wild-rye, Canadian	3.4	3.0	21.5
Grass Totals:	15.7	14.0	100.0
Common Name	PLS Rate		% of Mix Component
	kg/ha	lb/ac	
Winter Wheat*	62.7	56.0	80.0
Rye-grass, annual	12.5	11.2	16.0
Wheatgrass, slender	3.1	2.8	4.0
Cover Crop Totals:	78.3	70	100.0
Dry Forbs Mixture (Table 3876-6)	0.6	0.5	100.0
GRAND TOTALS:	94.6	84.5	100.0
*Oats to be substituted for spring plantings			
Application: Native mix for Sandy/dry areas. Short height.			

Mixture: 340			
Common Name	PLS Rate		% of Mix Component
	kg/ha	lb/ac	
Bluestem, big	3.3	3.0	21.5
Bluestem, little	2.8	2.5	18.0
Wild-rye, Canadian	2.2	2.0	14.0
Grama, sideoats	2.2	2.0	14.0
Switch grass	0.6	0.5	4.0
Dropseed, sand	0.6	0.5	3.5
Bluegrass, Canada	3.4	3.0	21.5
June grass	0.6	0.5	3.5
Grass Totals:	15.7	14.0	100.0
Common Name	PLS Rate		% of Mix Component
	kg/ha	lb/ac	
Winter Wheat*	62.7	56.0	80.0
Rye-grass, annual	12.5	11.2	16.0
Wheatgrass, slender	3.1	2.8	4.0
Cover Crop Totals:	78.3	70	100.0
Dry Forbs Mixture (Table 3876-6)	0.6	0.5	100.0
GRAND TOTALS:	94.6	84.5	100.0
*Oats to be substituted for spring plantings			
Purpose: Native mix for Sandy/Dry areas. Mid-height.			

Mixture: 350			
Common Name	PLS Rate		% of Mix Component
	kg/ha	lb/a c	
Bluestem, big	3.4	3.0	21.5
Indian grass	2.8	2.5	18.0
Bluestem, little	2.8	2.5	18.0
Grama, sideoats	3.4	3.0	21.5
Wild-rye, Canadian	2.2	2.0	14.0
Switch grass	1.1	1.0	7.0
Grass Totals:	15.7	14.0	100.0
Common Name	PLS Rate		% of Mix Component
	kg/ha	lb/a c	
Winter Wheat*	62.7	56.0	80.0
Rye-grass, annual	12.5	11.2	16.0
Wheatgrass, slender	3.1	2.8	4.0
Cover Crop Totals:	78.3	70	100.0
Mesic Forbs Mixture (Table 3876-6)	0.6	0.5	100.0
GRAND TOTALS:	94.6	84.5	100.0
*Oats to be substituted for spring plantings			
Application: Native mix for general roadside areas.			

CS-9.8 Mn/DOT Table 3876-6 is hereby deleted and replaced with the following:

Table 3876-6

Mixture: Mesic Forbs		
Common Name	Botanical Name	% of Mix
Aster, smooth-blue	<i>Aster laevis</i>	5.0
Milkvetch, Canada	<i>Astragalus canadensis</i>	5.0
Prairie clover, white	<i>Dalea candidum</i>	5.0
Prairie clover, purple	<i>Dalea purpureum</i>	5.0
Tick-trefoil, Showy	<i>Desmodium canadense</i>	5.0
Coneflower, narrow-leaved	<i>Echinacea angustifolia</i>	5.0
Ox-eye, common	<i>Heliopsis helianthoides</i>	5.0
Coneflower, grey-headed	<i>Ratibida pinnata</i>	5.0
Blazingstar, rough	<i>Liatris aspera</i>	5.0
Blazingstar, tall	<i>Liatris pycnostachya</i>	5.0
Bergamot, wild	<i>Monarda fistulosa</i>	5.0
Penstemon, showy	<i>Penstemon grandiflorum</i>	5.0
Mint, mountain	<i>Pycnathemum virginianum</i>	5.0
Coneflower, columnar	<i>Ratibida columnifera</i>	5.0
Black-eyed Susan	<i>Rudbeckia hirta</i>	5.0
Goldenrod, stiff	<i>Solidago rigida</i>	5.0
Vervain, blue	<i>Verbena hastata</i>	5.0
Vervain, hoary	<i>Verbena stricta</i>	5.0
Alexanders, heart-leaved	<i>Zizia aptera</i>	5.0
Alexanders, golden	<i>Zizia aurea</i>	5.0
Total:		100.0
Rate: 0.6 kg/ha (½ pounds per acre) PLS.		

Mixture: Dry Forbs		
Common Name	Botanical Name	% of Mix
Leadplant	<i>Amorpha canescens</i>	10.0
Milkweed, butterfly	<i>Asclepias tuberosa</i>	2.0
Aster, heath	<i>Aster ericoides</i>	4.0
Tic-seed, stiff	<i>Coreopsis palmate</i>	2.0
Yarrow	<i>Achillea millefolium</i>	2.0
Long-leaved bluets	<i>Hedyotis longifolia</i>	1.0
Bushclover, round-headed	<i>Lespedeza capitata</i>	3.0
Blazingstar, rough	<i>Liatris aspera</i>	4.0
Blazingstar, dotted	<i>Liatris punctata</i>	3.0
Lupine, wild	<i>Lupinus perennis</i>	5.0
Prairie clover, white	<i>Dalea candidum</i>	5.0
Prairie clover, purple	<i>Dalea purpureum</i>	16.0
Prairie rose	<i>Rosa arkansana</i>	1.0
Black-eyed susan	<i>Rudbeckia hirta</i>	18.0
Goldenrod, gray	<i>Solidago nemoralis</i>	3.0
Goldenrod, upland	<i>Solidago ptarmicoides</i>	1.0
Goldenrod, stiff	<i>Solidago rigida</i>	2.0
Goldenrod, showy	<i>Solidago speciosa</i>	2.0
Vervain, hoary	<i>Verbena stricta</i>	14.0
Alexander's, golden	<i>Zizia aurea</i>	2.0
	Total:	100.0
Rate: 0.6 kg/ha (½ pounds per acre) PLS		

Mixture: Wet Forbs		
Common Name	Botanical Name	% of Mix
Hyssop, fragrant giant	<i>Agastache foeniculum</i>	2.0
Water plantain	<i>Alisma subcordatum</i>	4.0
Meadow garlic	<i>Allium canadense</i>	1.0
Anemone, Canada	<i>Anemone Canadensis</i>	1.0
Milkweed, marsh	<i>Asclepias incarnata</i>	2.0
Aster, panicled	<i>Aster simplex</i>	3.0
Aster, New England	<i>Aster novaeangliae</i>	3.0
Aster, red-stalked	<i>Aster puniceus</i>	3.0
Aster, flat-topped	<i>Aster umbellatus</i>	1.0
Tick trefoil, Canada	<i>Desmodium glutinosum</i>	1.0
Joe-pye weed	<i>Eupatorium maculatum</i>	17.0
Boneset	<i>Eupatorium perfoliatum</i>	10.0
Goldenrod, grass-leaved	<i>Solidago graminifolia</i>	2.0
Sneezeweed	<i>Helenium autumnale</i>	1.0
Giant sunflower	<i>Helianthus giganteus</i>	2.0
Ox-eye, common	<i>Heliopsis helianthoides</i>	1.0
Great St. John's wort	<i>Hypericum pyramidalatum</i>	2.0
Iris, wild	<i>Iris versicolor</i>	1.0
Blazingstar, tall	<i>Liatris pycnostachya</i>	8.0
Bergamot, wild	<i>Monarda fistulosa</i>	1.0
Prairie clover, white	<i>Dalea candidum</i>	1.0
Prairie clover, purple	<i>Dalea purpureum</i>	2.0
Mountain mint	<i>Pycnanthemum virginianum</i>	1.0
Black-eyed susan	<i>Rudbeckia hirta</i>	6.0
Goldenrod, stiff	<i>Solidago rigida</i>	2.0
Tall meadow rue	<i>Thalictrum dasycarpum</i>	2.0
Vervain, blue	<i>Verbena hastata</i>	14.0
Ironweed	<i>Veronica fasciculata</i>	1.0
Culver's root	<i>Veronicastrum virginicum</i>	3.0
Alexander's, golden	<i>Zizia aurea</i>	2.0
	Total:	100.0
Rate: 2.2 kg/ha (2 pounds/acre) PLS		

CS-10 (3889) TEMPORARY DITCH CHECKS

The provisions of Mn/DOT 3889 are supplemented and/or modified with the following:

CS-10.1 Mn/DOT 3889.2B Type 2: Bioroll, is revised to read as follows:

Type 2 ditch checks shall consist of 3897 Filter Log Type; Straw Bioroll or Wood Fiber Bioroll.

CS-10.2 Mn/DOT 3889.2C Type 3: Bioroll Blanket System, is revised to read as follows:

Type 3 ditch checks shall consist of two components; Filter Log Type; Straw Bioroll or Wood Fiber Bioroll in accordance with 3897, staked on top of a Category 3, specification 3885 erosion control blanket. The blanket shall form a minimum width of 3.7 m **(12 feet)** perpendicular to the ditch gradient.

CS-11 (3891) STORM DRAIN INLET PROTECTION

The provisions of Mn/DOT 3891 are supplemented and/or modified with the following:

CS-11.1 Mn/DOT 3891.3A Rock Log, is revised to read as follows:

Rock logs shall meet the requirements of 3897.2 Filter Log Type Rock Log.

CS-11.2 Mn/DOT 3891.3B Compost Log, is revised to read as follows:

Compost logs shall meet the requirements of 3897.2 Filter Log Type Compost Log

EXERPTED FROM 2005 MN/DOT STANDARD SPECIFICATIONS FOR CONSTRUCTION

Mn/DOT SPECS

1701

Laws to be Observed

The Contractor shall keep fully informed of all Federal and State laws; all local laws, ordinances, and regulations; and all orders and decrees of bodies and tribunals having any jurisdiction or authority, which in any manner affect those engaged or employed on the work, or which in any way affect the conduct of the work. The Contractor shall at all times observe and comply with all applicable laws, ordinances, regulations, orders, and decrees; and shall protect and indemnify the Department and its representatives against all claims and liabilities arising from or based on violations committed by the Contractor or the Contractor's employees. The Contractor shall immediately report to the Engineer in writing any provisions in the Contract that are contrary to or inconsistent with any law, ordinance, regulation, order, or decree.

1717

Air, Land, and Water Pollution

1717.1 GENERAL

The Contractor shall schedule and conduct construction operations in a manner that will prevent, control, minimize, or abate pollution of air, land, and water in accordance with 1701. The Contractor shall obtain all necessary permits in accordance with 1702 and for temporary work not shown in the Contract.

A Blank

B Water Protection

The Contractor shall take all necessary precautions and actions to prevent pollution of ground, flowing, and impounded waters of the State with any particulate or liquid matter that may be harmful to fish and wild life or detrimental to public use of the water.

The Contractor shall prevent siltation and the resulting turbidity of public waters. Water containing sediment shall not be allowed to enter public waters until its sediment content has been reduced by filtration, settlement, or other means to the appropriate standard. When turbidity standards have not been established for a public water, the turbidity of the effluent shall be not more than that of the water into which it is discharged or will eventually enter. Wash water or waste from concrete mixing operations shall not be allowed to enter streams and public waters.

The Contractor shall minimize the crossing of streams and rivers with hauling equipment. Temporary bridging shall be used where an appreciable number of crossings are necessary. The Contractor shall clear the crossings of temporary construction as soon as practical after the purpose has been fulfilled. The Contractor shall prevent water pollution from haul roads, work platforms, temporary earth fills, and other temporary construction used to facilitate bridge or culvert construction.

1717.2 Erosion Control

The Contractor shall comply with all applicable laws, ordinances, regulations, orders, and decrees pertaining to erosion control, sediment control, and storm water management affecting the conduct of the work. **1717.2 79** When required, the Contractor shall obtain the National Pollution Discharge Elimination System. (NPDES) permit prior to starting work. No work shall be initiated until the Minnesota Pollution Control Agency's (MPCA) letter of coverage has been posted on site by the Contractor, or the Contractor verifies to the Engineer that the permit has been applied for by registered mail to the MPCA a minimum of seven days before starting soil disturbing activities.

A General Requirements

The Contractor shall schedule and conduct construction activities in a manner that will minimize soil erosion and the resulting siltation and turbidity of surface waters. The Contractor shall comply by the requirements herein regardless whether or not an NPDES permit for the work is required.

A1 Before Construction

The Contractor shall install temporary sediment control measures in areas tributary to public waters before construction begins in a drainage area.

A2 During Construction

The Contractor shall implement the Project's Storm Water Pollution Prevention Plan. The Contractor shall schedule and install temporary and permanent sediment and erosion control measures, construct ponds and drainage facilities, finish earth work operations, place topsoil, establish turf, and conduct other Contract work in a timely manner to minimize erosion and sedimentation.

All exposed soil areas with a continuous positive slope within 60 m (**200 feet**) of surface waters, including pond sides slopes, curb and gutter systems, storm sewer inlets, temporary or permanent drainage ditches, or other storm water conveyance systems, shall have temporary erosion protection or permanent cover for the exposed soil areas within the following time frames (For the purposes of this provision, exposed soil areas do not include stockpiles or surcharge areas of sand, gravel, aggregate, concrete, or bituminous.):

<u>Type of Slope</u>	<u>Time*</u>
Steeper than 1 vertical: 3 horizontal.....	7 days
Between 1:3 and 1:10.....	14 days
Flatter than 1 vertical: 10 horizontal.....	21 days

* The maximum time an area can remain un-worked by the Contractor without temporary or permanent erosion control measures implemented.

In drainage areas contributing to Special Waters, exposed soil on slopes 1:3 or steeper must have temporary erosion protection or permanent erosion protection installed within 3 days of the soil no longer actively being worked. For all other exposed soil slopes in drainage areas contributing to Special Waters, temporary erosion **1717.2 80** protection or permanent erosion protection must be installed within 7 days of the soil no longer actively being worked. Special Waters are defined as those listed and referenced in the NPDES Permit. The bottom of temporary or permanent drainage ditches constructed to drain water from a construction site must be stabilized with erosion control measures within 60 m (**200 feet**) from the property edge or from the point of discharge to any surface water. Stabilization shall be completed within 24 hours of connecting the drainage ditch to a surface water, existing gutter, storm sewer inlet, drainage ditch, or other storm water conveyance system that discharges to surface waters.

Pipe outlets shall be provided with temporary or permanent energy dissipation within 24 hours of connecting the pipe to a surface water.

The Contractor shall limit the surface area of erodible soil that can be exposed to possible erosion at any one time when the permanent erosion control features are not completed and operative.

A3 Vehicle Tracking

The Contractor shall minimize vehicle tracking of sediment or soil off site at locations where vehicles exit the construction site onto paved surfaces. In accordance with 1514 and 2051, tracked sediment shall be removed from paved surfaces, which do not drain back into the construction site, within 24 hours of discovery.

A4 Sediment Removal

The Contractor is responsible for preventing or minimizing the potential for erosion or siltation after temporary erosion or sediment control work has been performed. The Contractor shall retrieve all sediment that has left the Right of Way, to the fullest extent possible. Unless the Project has received approval or certification for depositing fill into surface waters, the Contractor shall remove all deltas and sediment deposited in drainage ways or catch basins and restabilize the areas where sediment removal results in exposed soil. The removal and stabilization shall take place within 7 calendar days of discovery unless precluded by legal, regulatory, or physical access restraints. If precluded, removal and stabilization must take place within 7 calendar days of obtaining access. The Contractor is responsible for contacting all local, regional, state, and Federal authorities before working in surface waters and obtaining applicable permits.

A5 Suspension of Grading

The Contractor shall shape exposed soil and incorporate temporary and permanent erosion control measures to the satisfaction of the Engineer before suspension of grading operations for any appreciable length of time. Prior to shutdown and ceasing grading activities for the winter, exposed soils and discharge points shall have temporary or permanent cover installed. **1717.2 81 B**

Related Work

The Contractor shall control drainage and erosion on the work related to the Project including: haul roads, temporary construction, waste disposal sites, plant and storage locations, and borrow pits other than commercially operated sources. The Contractor shall maintain the area, shape the area to allow storm runoff with minimum erosion, replace topsoil, and establish vegetative cover on areas where the potential for pollution has been increased due to the Contractor's operations. The Contractor's waste disposal sites, borrow pit areas or other related work that disturbs 0.4 hectares (**1 acre**) or more of total land area and located outside of the Right-of-Way will require the Contractor's own NPDES permit.

C Quality Control

The Contractor shall be responsible for maintaining a quality control program to ensure that erosion is controlled, that is sedimentation is prevented and that provisions of permits are adhered to.

The quality control program shall consist of:

- a.) Ensuring that permit requirements related to the contractors construction activities are adhered to.
- b.) Conducting the inspections required in the NPDES permit.
- c.) Maintaining the NPDES inspection log
- d.) Ensuring that erosion control is incorporated into the work in a timely manner and that disturbed areas are stabilized with mulch/seed or vegetative cover on a section by section basis.
- e.) Ensuring in accordance with 2573.3 that temporary erosion control devices are maintained.
- f.) Ensuring in accordance with 2573.3 that temporary erosion control devices are removed when they are no longer necessary.

In accordance with 1506 the Contractor shall have a competent individual available to the Project to conduct the quality control program. The Contractors quality control and inspection procedures shall be subject to review by the Engineer. NPDES inspection records shall be maintained by the Contractor at the Project site and made available at all times for verification by the Engineer.

D Erosion Control Schedule

The Contractor shall prepare and submit a weekly schedule of proposed erosion control activities for the Engineer's approval. The Engineer may require schedules to be submitted orally or in writing. The schedule shall provide a discussion of:

1. Proposed erosion control installations and when they will be installed. **1717.2 82**
2. Areas ready for permanent turf establishment and when it will be accomplished.
3. Grading operations and how erosion control will be incorporated into the work.
4. Repair or maintenance required on erosion control installations and when it will be accomplished.
5. Proposed erosion control measures during periods of suspension of work.

E Site Plans

The Engineer may require the Contractor to submit a site plan detailing proposed erosion control and sediment control measures and a schedule indicating starting and completion times for construction operations working in water bodies and/or in direct proximity to waters of the state.

Contractor shall not start work in the affected areas until the schedule and site plan have been accepted by the Engineer.

F Compensation

The Contractor will receive compensation for erosion control as provided for in the Contract. All other expenses incurred in complying with these provisions and 1717 shall be borne by the Contractor. The Contractor will not receive compensation for erosion control off of the Right of Way unless so specified in the Contract. Temporary and permanent erosion or pollution control measures ordered by the Engineer, which are necessitated by additional Contract work or by unforeseen failure of the original erosion or sediment control work provided for in the Contract, will be paid for at the appropriate Contract prices for like work or as Extra Work in the absence of comparable items of work.

G Withholding of Payment—Noncompliance

If the Contractor fails to install erosion or sediment control measures ordered by the Engineer, the Engineer may withhold payment from related work until the control measures are undertaken by the Contractor. When the Contractor fails to conduct the quality control program, doesn't conduct the inspections required in the NPDES permit, or fails to take action ordered by the Engineer to remedy erosion or sediment control problems: The Engineer will issue a written order to the Contractor. The Contractor shall respond within 24 hours with sufficient personnel, equipment and/or materials and conduct the required work or be subject to a \$500.00 per calendar day deduction for noncompliance.

1717.3 COMPENSATION AND TIME EXTENSION

The Contractor will not receive additional compensation or time extensions for any disruption of work or loss of time caused by any 1721 83

actions brought against the Contractor for failure to comply with air, land, and water pollution controls.

2573

Storm Water Management

2573.1 DESCRIPTION

This work consists of: 1) managing storm water runoff and project related water discharges in order to minimize sediment pollution during construction and over the life of the contract and 2) managing the discharges associated with dewatering and basin draining activities as set forth in the NPDES permit. The work includes furnishing, installing, maintaining and utilizing storm water best management practices and any work specified in conjunction therewith as well as removing temporary sediment control devices when no longer necessary.

2573.2 MATERIALS

A Bale Barriers, as specified for Type 1 Mulch.....	3882
B Silt Fence.....	3886
C Flotation Silt Curtain.....	3887
D Temporary Ditch Checks.....	3889
E Storm Drain Inlet Protection.....	3891
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2573.3 CONSTRUCTION REQUIREMENTS

A General.....Also refer to: 1701, 1716, 1717, 2105.5, 2575

In accordance with 1716 the Contractor has responsibility for charge and care of the Project and shall take necessary precautions against injury or damage to the Project by action of the elements. In addition, the Contractor shall take necessary precautions to prevent off site damage resulting from work conducted on the Project or Project related storm water runoff.

The Contractor is responsible for preventing or minimizing sediment loss from the Project by directing storm water runoff to constructed ponds and sediment traps as well as installing temporary sediment control devices in drainage locations where runoff can leave the Project limits and/or enter into environmentally sensitive areas.

The Contractor shall schedule, construct and/or install temporary sediment control and storm water management measures as required by the Contract and as stated in the permits required for the Project without having to obtain prior approval or having to be so directed by the Engineer. In the case of errors or omissions, the Contractor shall inform the Engineer upon immediate discovery.

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The Contractor shall install temporary storm water management and sediment control devices in conformity with the details, typical sections, and elevation controls shown in the Contract. The actual installation location of temporary storm water management and sediment control devices may be slightly adjusted from that indicated in the Plan to better accommodate the actual field conditions and increase the effectiveness of a device. The Department will not conduct location staking unless requested by the Contractor. Errors, omissions, and changed site conditions affecting the location or placement of the temporary storm water management or sediment control devices shall be brought to the attention of the Engineer by the Contractor.

A1 Erosion Control Supervisor

The Contractor shall provide an Erosion Control Supervisor with a valid certification to direct the Contractor and subcontractor(s) operations and insure compliance with Federal, State and Local ordinances and regulations. The certification is obtained by completing a two (2) day Erosion/Sediment Control Site Management training class and passing the required test, from a Mn/DOT approved provider as listed in the Mn/DOT certification schedule.

The Erosion Control Supervisor shall implement the SWPPP and conduct the Contractor's erosion and sediment quality control program. In addition, the Erosion Control Supervisor shall be available to be on the Project within 24 hours at all times from initial disturbance to final stabilization as well as perform the following duties:

1. Coordinate and schedule the work of subcontractors such that erosion and sediment control measures are fully executed for each operation and in a timely manner over the duration of the Contract.
2. Oversee the work of subcontractors so that appropriate erosion and sediment preventive measures are undertaken at each stage of the work.
3. Prepare the required weekly erosion control schedules and present it to the Engineer.
4. Attend all weekly construction meetings to discuss the findings of the NPDES inspection log and other related issues.
5. Prepare the erosion/sediment control site plans requested by the Engineer.
6. Provide for erosion/sediment control methods for Contractor's temporary work not shown on the plans, such as work platforms, temporary construction, pumping operations, plant and storage yards, and cofferdams.
7. Ensure that applicable permits are acquired and complied with for borrow pits, dewatering and any temporary work conducted by the Contractor in rivers, lakes and stream

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8. Ensure that all erosion/sediment control work is conducted in a timely manner.
9. Ensure that erosion/sediment control work is installed to the fullest extent prior to suspension of the work.
10. Coordinate with Federal, State and Local Regulatory agencies on resolution of erosion/sediment control issues due to the Contractor's operations.
11. Ensure that proper cleanup occurs from vehicle tracking on paved surfaces and/or any location where sediment leaves the Right-of-Way.

If the Contractor fails to provide a certified Erosion Control Supervisor for the Project, the Engineer shall issue a written order to the Contractor. The Contractor shall respond within 24 hours and provide the required Erosion Control Supervisor or be subject to a \$1000 per calendar day deduct for noncompliance.

A2 Construction of Temporary Storm Water Basins

Temporary storm water basins shall be constructed concurrently with the start of soil disturbing activities whenever possible. The basins must be made fully functional and have storm water runoff from the localized watershed directed to the basins. The exposed sideslopes of the basins must be mulched and/or seeded within the time periods as set forth in 1717, or as directed by the Engineer.

A3 Temporary Sediment Control Measures

Sediment control measures must be installed down gradient prior to or in conjunction with soil disturbing activities. The Contractor shall schedule, install and maintain temporary sediment control measures as an ongoing effort on a site-by-site basis over the life of the Contract. The Contractor is responsible for minimizing the potential for sedimentation after temporary sediment control devices have been installed by implementing a good quality erosion control program and staging construction as needed. If the Engineer determines that the Contractor has not followed good erosion control practices that result in sedimentation outside of the Right of Way, the Contractor shall retrieve all sediment that has left the Right of Way and restore the property to the pre-existing condition, to the fullest extent possible at the Contractor's expense.

A4 Dewatering and Pumping

If dewatering or pumping of water is necessary, the Contractor is responsible for obtaining any necessary permits in accordance with 1701 and 1702. If the discharge from the dewatering or pumping process is turbid or contains sediment-laden water, it must be treated through use of sediment traps, vegetative filter strips, flocculants, or other sediment reducing measures such that the discharge is not visibly

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different from the receiving water. The discharge location of the dewatering process must also be protected from excess erosion. Unless otherwise provided in the Contract, the best management practices used to control erosion and suspended sediment during the dewatering or pumping operation shall be furnished by the Contractor. The Contractor shall submit a dewatering plan to the Engineer prior to initiating dewatering activities.

A5 Vehicle Tracking onto Paved Surfaces

The Contractor shall use wood chip pads, temporary paving, or other appropriate Best Management Practices (BMPs) at major vehicle exit locations to minimize vehicle tracking of sediment from the Project onto paved surfaces. BMPs to protect vehicle exit sites shall be furnished by the Contractor and shall be incidental to the Project for which no direct compensation will be made.

The Contractor is responsible for insuring paved streets are clean at the end of each working day. Tracked sediment on paved surfaces must be removed by the Contractor within 24 hours of discovery, in accordance with 1717.2. Payment for street sweeping to provide safe conditions for the traveling public, environmental reasons or regulatory requirements shall be as provided in accordance with 1514.

A6 Infiltration Areas

Infiltration areas and constructed infiltration systems should not be constructed until the contributing drainage area and/or adjacent construction site have been completely stabilized. When this timing of construction is not possible, the Contractor shall insure sediment from exposed soil areas of the Project does not enter into the infiltration area or system. Payment for constructing infiltration areas shall be as provided for in the Contract.

A7 Critical Resources

The Contractor shall schedule and phase construction in critical resource areas to the best of his ability in order to minimize the potential of sediment entering into a critical resource. Critical resources include but are not limited to, protected wetlands, surface waters, trout streams, Special Waters, impaired waters, rivers, and endangered species habitat. Measures to minimize sediment potential include practices such as hand clearing and grubbing, limited bare soil exposure time, and immediate final establishment of vegetation.

B Installation of Bale Barriers

Bales shall be trenched into the ground 100 mm (4 inches) and staked with two 50 mm x 50 mm (2 inch x 2 inch) wood stakes. The stakes shall be of sufficient length such that at a minimum the top of the stakes are flush with the top of the bale and are also embedded into the ground a minimum of 250 mm (10 inches).

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C Silt Fence Installation

C1 Machine Sliced

The geotextile shall be inserted by a machine in a slit in the soil 200-300 mm (8-12 inches) deep with the salvaged edge on top. The slit shall be created such that a soil-slicing blade slightly disrupts soil upward as the blade slices through the soil. Directly behind the soil-slicing blade, the geotextile shall be mechanically inserted down into the soil slit such that 200-300 mm (8-12 inches) of the geotextile is below the ground surface. Soil slicing and installation is a simultaneous operation, achieving consistent placement and depth. No turning over (plowing) of soil is allowed for the slicing method. Compact the soil immediately next to the geotextile by operating the wheels of a tractor or skid steer on each side of the geotextile a minimum of 2 times. Posts shall be installed adjacent to the back face of the geotextile with the nipples facing away from the geotextile fabric. Posts shall be embedded a minimum of 0.6 m (2 feet) into the ground and installed a maximum of 1.8 m (6 feet) apart for general use and 1.2 m (4 feet) apart in ditch check applications. Secured at each post, three plastic zip ties shall be inserted through the geotextile within the top 200 mm (8 inches) of the fabric, puncturing holes vertically a minimum of 25 mm (1 inch) apart.

C2 Heavy Duty

The heavy duty silt fence system shall be hand installed with the salvaged edge on top. The bottom edge of the geotextile shall be placed into a 150 mm (6 inch) deep by 100 mm (4 inch) wide trench with the bottom edge of the geotextile wrapping back up to the soil surface. The trench shall be backfilled and tamped for compaction. Posts shall be installed adjacent to the back face of the geotextile with the nipples facing away from the geotextile fabric. Post shall be embedded a minimum of 0.6 m (2 feet) into the ground and installed a maximum of 1.8 m (6 feet) apart. Secured at each post, three plastic zip ties shall be inserted through the geotextile within the top 200 mm (8 inches) of the fabric, puncturing holes vertically a minimum of 25 mm (1 inch) apart.

C3 Super Duty

The bottom edge of the geotextile shall be placed 100-150 mm (4 to 6 inches) underneath the face of the median barrier exposed to direct storm water runoff. The median barriers shall be placed end to end in such a way to minimize the gap between each barrier. The geotextile shall be attached to the face of the barrier with wire or plastic zip tie inserted into the top 200 mm (8 inches) of the geotextile and tied to each eyelet on the barrier.

C4 Preamsembled

The geotextile shall be installed with the salvaged edge on top. The bottom edge of the geotextile shall be placed into a 150 mm (6 inch)

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deep by 150 mm (6 inch) wide trench. The trench shall be backfilled and tamped for compaction. Post shall be embedded a minimum of 450 mm (18 inches) into the ground and installed a maximum of 1.8 m (6 feet) apart.

D Flotation Silt Curtain Installation

The curtain shall be constructed with connecting devices at each end so that sections can be joined together. Connecting devices shall be designed to prevent silt from permeating through the connection and at the specified strength to prevent ripping out. The depth of the curtain shall be a minimum of 0.6 m (2 feet) to a maximum of 3.0 m (10 feet). Unless otherwise specified in the Contract, the depth of curtain shall be 1.2 m (4 feet). Installation shall typically be on the bottom of the water body.

D1 Still Water

The curtain shall be anchored along its length with enough weight to hold it in place. Both ends of the curtain shall be secured to land.

D2 Moving Water

The curtain shall be anchored out in the waterway in a herring bone configuration. The curtain shall be placed at an approximate 30 degree angle from shore, pointing up stream. Curtains shall not be placed across flowing water courses. Anchors shall be 136 kg (300 pounds) and located a maximum of 14.2 m (50 feet) spacing along the curtain. Each anchor shall be marked by a buoy. One end of the curtain shall be secured to land.

D3 Work Area

The curtain shall extend at a 45 degree angle from both ends secured to shore to enclose the work area. The work area shall extend a maximum of $\frac{1}{4}$ of the stream width. The curtain shall extend a maximum of $\frac{1}{3}$ of the stream width. The curtain shall be anchored out in the waterway with a minimum of 18 kg (40 pounds) at a maximum of 30 m (100 feet) intervals along the length of the curtain.

E Temporary Ditch Check Installation

All ditch checks shall be sufficiently long perpendicular to the ditch gradient such that the top of the device in the middle of the ditch is lower in elevation than the bottom of the terminating points on the ditch sideslopes.

E1 Type 1- Sliced in Silt Fence

Installation procedures are in accordance with 2573.3 C1. Maximum post spacing shall be 1.2 m (4 feet).

E2 Type 2- Bioroll

The bioroll shall be installed and anchored with wood stakes. The stakes shall be at a minimum nominally 13 mm x 50 mm (½ inch x 2 inch) and a minimum of 400 mm (16 inches) long with a pointed end.

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The stakes shall be driven through the back half of the bioroll at an angle of approximately 45 degrees with the top of the stake pointing upstream. The maximum spacing between stakes shall be 0.3 m (1 foot). When more than one bioroll is needed for length, the ends shall be overlapped 150 mm (6 inches) with both ends staked.

E3 Type 3- Bioroll Blanket System

The blanket shall be rolled out on bare soils and across the ditch with the leading edge that is subject to flow buried in a 100 mm (4 inch) deep by 100 mm (4 inch) wide trench. The trench shall be backfilled and compacted. The blanket shall form a minimum width of 3.7 m (12 feet) perpendicular to the ditch gradient. The blanket shall be stapled with either U shaped, 11 gage or heavier steel wire having a span width of 25 mm (1 inch) and a length of 150 mm to 200 mm (6 to 8 inches) at a maximum spacing of 3 m (1 foot) on center.

The bioroll shall be installed on top of the blanket and anchored with wood stakes. The stakes shall be at a minimum nominally 13 mm x 50 mm (½ inch x 2 inch) and a minimum of 400 mm (16 inches) long with a pointed end. The stakes shall be driven through the back half of the bioroll at an approximate angle of 45 degrees with the top of the stake pointing upstream. The maximum spacing between stakes shall be 0.3 m (1 foot). When more than one bioroll is needed for length, the ends shall be overlapped 150 mm (6 inches) with both ends staked.

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E5 Type 5- Rock Weeper

A Type IV geotextile (3733) shall line the bottom of the rock weeper. The rock weeper shall be created such that the side profile forms a triangle with 1:6 (V:H) slopes on both the front and back slopes. Coarse concrete aggregate shall be installed on the front half of the triangle with a 1:6 slope to a height of ½ m (1 ½ feet). The riprap shall be installed on the back half of the triangular section. The center cross-section of the weeper shall be constructed such that center point of the rock weeper is approximately 100 mm (4 inches) lower than the end points of the weeper at the ditch side slopes.

E6 Type 6- Geotextile triangular dike

The leading edge subject to flow of the geotextile apron shall be buried in a 100 mm (4 inch) deep by 100 mm (4 inch) wide trench. The trench shall be backfilled and compacted. The flat geotextile portion shall be stapled with U shaped, 11 gage or heavier steel wire having a span width of 25 mm (1 inch) and a length of 150 mm to 200 mm (6 to 8 inches) at a maximum spacing of 300 mm (1 foot) on center.

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E7 Type 7- Rock check

Riprap shall be installed on top of a Type IV geotextile liner (3733). Class II crushed riprap shall be used in the absence of a specified class. Rock shall be configured in a trapezoidal shaped berm with respect to the side profile such that the bottom of the berm is approximately 1.5 m (5 feet) wide, the top of the berm is approximately ½ m (1 ½ feet) wide, and the depth of the berm is approximately ½ m (1 ½ feet) deep. The center cross-section shall be constructed such that the center point of the rock check is approximately 100 mm (4 inches) lower than the end points of the rock check at the ditch side slopes.

F Storm Drain Inlet Protection

Storm drain inlet protection shall consist of the best management practices and devices for preventing sedimentation into and through underground drainage systems. Storm drain inlet protection applies to manholes, catch basins, curb inlets and other drop type inlets constructed for the ingress of surface water runoff into underground drainage systems. Storm drain inlet protection as described herein, will not include practices to protect culverts. See Section G for culvert protection.

The Contractor must protect storm drain inlets with sediment capture devices prior to soil disturbing activities that would result in sediment laden storm water runoff entering the inlet. The Contractor shall provide effective storm drain inlet protection over the life of the Contract until all sources with potential for discharging to an inlet have been paved or stabilized. As the Contractor's operations change, the storm drain inlet Best Management Practice for sediment control must be modified by the Contractor to ensure proper effectiveness for sediment capture.

The Contractor is responsible for preventing or minimizing the potential for unsafe, flooding, or siltations problems. For example, devices must be regularly cleaned out and emergency overflow must be an integral part of the device to reduce the flooding potential; and devices must be placed such that driving hazards or obstructions are not created. Sediment deposited in and/or plugging drainage systems will be the responsibility of the Contractor and shall be removed at no expense to the Department.

G Culvert Protection

Methods to protect the various types of culverts both at the inlet and/or outlet shall be as indicated in the Plan. Unless otherwise provided for in the Contract, materials and/or devices used shall be paid for separately.

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H Sediment Mat Installation

Mats shall be laid flat on the bottom of the streambed and anchored with wood stakes. The stakes shall be nominally 50 mm x 50 mm (2 inch x 2 inch) with a pointed end. Stakes shall be of sufficient length to be embedded a minimum of 0.45 m (18 inches) into the streambed and also appear above the water surface. The maximum spacing between stakes shall be 0.6 m (2 feet) along all edges of the mat. When more than one mat is necessary, the upstream mat edge shall overlap the downstream mat a minimum of 0.15 m (6 inches). The sides of adjoining mats shall overlap a minimum of 0.15 m (6 inches).

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J Filter Log Installation

Filter logs shall be placed in accordance with the Plan. Straw and wood fiber filter logs shall be staked in place with wood stakes. Wood stakes shall be at a minimum 13 x 51 mm ($\frac{1}{2}$ x 2 inch) nominal size by 400 mm (16 inches) long. The stakes shall be driven through the back half of the log at an angle of approximately 45 degrees with the top of the stake pointing upstream. When more than one log is needed for length, the ends shall be overlapped 150 mm (6 inches) with both ends staked. Staking shall be every 0.3 m (1 foot) along the log unless precluded by paved surface or rock.

K Flocculants

Flocculants shall not be applied directly to surface waters unless regulatory approval has been obtained. Flocculants shall be applied within containment areas such as temporary storm water ponds, temporary sediment traps, and containment systems. Before applying a flocculant, the pH and temperature of the storm water must be tested and be within the manufacturer's specified ranges. Adequate retention time for chemical reaction (approximately 15-20 minutes) for clay-sized particles to settle must be achieved such that the discharge of the treated water is visually the same as the receiving water.

K1 Liquid Floc

Liquid Flocculant shall be hydraulically applied over the surface of the water to be treated. The liquid flocculant concentrate shall be diluted to form a stock solution. The stock solution shall be applied at the appropriate rate to yield 1ppm in the final treated water volume.

K2 Flocculant Log

The flocculant log shall be securely anchored in an area where the water to be treated will flow over the flocculant log. Flocculant logs are not to be left in standing, stagnant water.

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K3 Granular Floc

Granular based flocculant shall be mixed with water in a tank to form a stock solution. The stock solution shall be hydraulically applied at the appropriate rate to yield 1ppm in the final treated water volume.

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M Maintenance

M1 General

The Contractor shall maintain all temporary sediment control devices until they are no longer necessary and are removed. Maintenance consists of keeping the devices functioning properly. The Contractor shall repair or replace plugged, torn, displaced, damaged, or nonfunctioning devices to the satisfaction of the Engineer.

M2 Temporary Sediment Control Devices

The Contractor shall remove sediment from devices such as bale barriers, silt fences, ditch checks and storm water filter logs when the sediment reaches one-third of the height of the device and reshape the area to the Plan specifications. If sediment removal causes damage to a device or the device is non-functional, the Contractor shall replace the device. Sediment removal shall occur within 24 hours of discovery or as soon as field conditions allow access. Removal of sediment shall be incidental to the Project for which no direct compensation will be made.

M3 Sediment Basins and Traps

When the depth of sediment collected in the basin reaches 50 percent of the height of the riser, or 50 percent of the storage volume, the basin shall be drained and the sediment removed. Drainage and removal shall be completed within 72 hours of discovery, or as soon as field conditions allow access. Removal of sediment shall be paid for separately.

After the entire Project has undergone final stabilization, all temporary sedimentation basins to be used as permanent water quality

management basins must be cleaned out and shaped by the Contractor to the Plan's specifications.

M4 Storm Drain Inlet Protection Devices

The Contractor shall clean, remove sediment or replace storm drain inlet protection devices on a routine basis such that the devices are fully functional for the next rainstorm event. Removal and disposal of trapped sediment in inlet protection devices shall be incidental to the Project. Sediment deposited in and/or plugging drainage systems is the responsibility of the Contractor and shall be removed at no expense to the Department.

N Sediment Removal

The Contract shall remove sediment deposited in sediment basins and traps once the sediment reaches 50 percent of the basin or trap's

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sediment storage capacity within 72 hours of discovery. Sediment removal shall consist of excavating and other associated operations to remove sediment and restore the capacity of the temporary sediment control device. Sediment shall be removed to the original grade or as necessary to restore the function of the device. Sediment removed shall be spread or disposed of to the satisfaction of the Engineer. The Contractor will be compensated for sediment removal on an equipment rental hourly basis in accordance with 2123. Spreading, hauling, and disposing of material shall be at no expense to the Department. Sediment removal shall be accomplished with a backhoe or other suitable equipment capable of reaching out and excavating semi- solid material. The backhoe shall be of the full-revolving crawler type and

shall have a minimum bucket size 0.4 m³ (½ cubic yard). Size of the boom and the power unit shall be as recommended by the manufacturer for use with the bucket size. Depending on site conditions, the Engineer may allow a rubber tired tractor type backhoe to be used. Payment for the rubber tired tractor backhoe will be prorated based on rated capacity of the machine.

O Removal of Temporary Devices

The Contractor shall remove all temporary sediment control devices upon completion of the Contract work unless otherwise specified in the Contract or directed by the Engineer. All removed materials become the property of the Contractor.

The Contractor shall spread accumulated sediment to form a suitable surface for turf establishment or dispose of the sediment elsewhere. The Contractor shall shape the area to permit natural drainage. All work shall be done to the satisfaction of the Engineer.

P Workmanship and Quality Control

The Contractor is responsible for maintaining quality control on the project by ensuring that all work performed and all materials furnished are in conformance with the dimensions, installation requirements and material specifications shown in the Plans or indicated in the

Specifications. Quality workmanship shall be used in all aspects of the work and shall be uniform in character throughout the project.

P1 Certified Installers

When erosion or sediment control practices are installed, a certified installer shall be on the Project to install the practices or direct the installation. Certified installer requirements shall apply to the following operations:

Seeding

Sodding

Mulching

Silt fence or other perimeter sediment control device installations

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Erosion control blanket installation

Hydraulic Soil Stabilizer installation

Silt curtain installation

Ditch check installation

Compost installation

Erosion Stabilization Mat installation

Each Contractor or subcontractor installing erosion or sediment control practices shall provide at least one certified installer at the time of installation. The certification is obtained by completing and passing an Erosion/Sediment Control Inspector/Installer training course that is taught by a Mn/DOT approved provider as listed in the Mn/DOT certification schedule.

If the Contractor or subcontractor(s) fails to provide the required certified installer(s), the Erosion Control Supervisor shall notify the Engineer. If either the Erosion Control Supervisor or the Engineer determines that one or more required certified installers have not been provided, the Contractor shall respond to the Engineer's notification within 2 days with the appropriately certified or provisionally certified person(s), or be subject to a \$500.00 per required installer per calendar day deduction for noncompliance.

Q Workmanship Rework Schedule

Performance of the work shall be controlled by the Contractor so that the materials installed and the workmanship practices are of good quality. When the quality falls below the threshold level defined in Table 2573-1, the Contractor shall take immediate action to correct the situation and prevent it from reoccurring. As indicated in the table, the Contractor shall correct unacceptable workmanship to qualify for payment.

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TABLE 2573-1

Temporary Erosion Control: Corrective Action Item	Corrective action required when
Silt Fence	Improper geotextile used
	Insufficient geotextile embedment
	Insufficient compaction of soil
	Soil turned over and/or loosened due to inadequate equipment for sliced type
	Inadequate fastening of geotextile, posts, etc.
	Incorrect post spacing
Bale Barriers	Not notched in
	Not properly staked into the ground

Floation Silt Curtain	Curtain not anchored on land Curtain not weighted sufficiently in water
Ditch Checks	Not trenched in for silt fence, blanket or triangular dike
	Not stapled properly for blanket or triangular dike
	Water flows around the end rather than over the middle
	Incorrect post spacing for silt fence or bioroll/blanket system
	Biorolls not staked properly
	No geotextile used for Type 5 or 7
Storm Drain Inlet Protection	Inlet opening is not protected.
	Emergency overflow is not provided where required
	Device not cleaned out
Filter Logs	Not staked properly resulting in under mining or movement of logs
	Log ends not overlapped when more than one is needed in a line

The above table pertains to a threshold level of workmanship only and does not pertain to the use of nonconforming materials. The disposition of nonconforming materials shall be in accordance with 1503. The Contractor at no cost to the Department shall perform any corrective actions required for acceptance of the work.

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2573.4 METHOD OF MEASUREMENT

A Bale Barriers

Bale barriers will be measured by the length furnished and acceptably installed.

B Silt Fence

Silt fence will be measured by length furnished and acceptably installed. Measurement will be along the base of the fence from outside to outside of the end posts for each section of fence.

C Sandbag Barriers

Sandbag barriers will be measured by surface area acceptably installed based on actual measurement taken along the length of the barrier times its height. When more than one thickness of bags is installed, the surface area of each layer of thickness will be measured and added to the quantity.

D Flotation Silt Curtain

Flotation silt curtain will be measured by length furnished and acceptably installed.

E Sediment Traps

Sediment trap quantities will be measured by volume for basin excavation and construction. Excavation will be measured by volume of the material in its original position. Quantities will be based on actual field measurement and increases or decreases to the estimated Plan quantity will not be considered as a basis of claim for adjusted unit prices. Materials used to provide an overflow will be measured and paid for separately.

F Temporary Pipe Downdrains

Temporary pipe downdrains will be measured by length finished and acceptably installed. Materials, such as riprap, used to provide an outlet will be measured and paid for separately.

G Bituminous Lined Flumes

Bituminous lined flumes will be measured by area on the basis of actual surface dimensions as placed without regard to the type of bituminous mixture used or number of courses placed. The type of bituminous used shall be as provided for in the Contract or as directed by the Engineer. Damaged areas restored, by order of the Engineer, will be added to the original quantity. Materials, such as riprap, used to provide an outlet will be measured and paid for separately.

H Diversion Mounds

Diversion mounds will be measured by volume after compaction and in its final configuration. Quantities will be based on actual field measurement.

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J BLANK

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K Sediment Removal

Sediment removal will be measured by the number of hours of actual equipment working time in accordance with 2123.4.

Sediment removed may be fluid or semi-solid and its consistency shall not be considered a basis of claim for adjusted unit prices.

L Sediment Mats

Sediment mats will be measured by the area furnished and acceptably installed.

M Temporary Ditch Checks

Types 1, 2, 3, 6 temporary ditch checks will be measured by length furnished and acceptably installed. Types 5 and 7 will be measured by

volume based on field measurement.

N Culvert Protection

Culvert protection devices will be measured by the quantity of each device furnished and installed. Quantities for new devices to replace the original device installed will be measured and added to the total quantity.

O Storm Drain Inlet Protection

O1 Each Storm Drain Inlet

Storm drain inlet protection will be measured by the number of individual inlets properly protected over the life of the Contract without regard to the various types or number of devices used at each storm drain inlet.

O2 Lump Sum

Storm drain inlet protection will be measured by lump sum. Lump sum shall be considered to include all materials and labor as necessary to provide proper inlet protection over the life of the contract regardless of quantities required. Under this provision, no measurement will be made of any individual device or inlet location.

P Filter Logs

Filter logs will be measured by the length furnished and acceptably installed.

Q BLANK

R Flocculants

R1 Type A will be measured by the volume of liquid flocculant concentrate used and acceptably placed. No measurement will be made for the amount of water used to dilute the concentrate.

R2 Type B will be measured by each flocculant log furnished and acceptably placed.

R3 Type C will be measured by the mass of granular flocculant used and acceptably placed. No measurement will be made for the amount of water used to dissolve and dilute the granular flocculant.

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S Erosion Control Supervisor

No direct measurement will be made of the various duties that the Erosion Control Supervisor performs or of the number of hours required, but all such work will be construed to be included in the single Lump Sum Payment. Upon satisfactory completion of either one-half the allowable Working Days for the Project, or one-half of the anticipated Project duration time, the Engineer may authorize partial payment not exceeding 50 percent of the Contract bid price. The remaining percentage will be paid upon satisfactory performance of duties at the Engineer's discretion and completion of the Project.

2573.5 BASIS OF PAYMENT

Payment for storm water management and sediment control items

will be compensation in full for all labor, materials, equipment, and other incidentals necessary to complete the work as specified, including the costs of maintenance and removal as required by the Contract. The Contractor will receive compensation at the appropriate Contract prices, or in the absence of a Contract bid price, according to the following unit prices, or in the absence of a Contract price and unit price, as Extra Work.

A General

Upon satisfactory installation of temporary sediment control devices, the Engineer may authorize partial payment not exceeding 80 percent of the Contract bid price for that item, unless otherwise indicated in the Contract. The remaining percentage will be paid after the devices are removed.

B Storm Drain Inlet Protection

B1 Partial Payments

Storm drain inlet protection will be paid in partial payment amounts for satisfactory completion of the following work.

Initial Installation.....25% payment

Maintenance during first half of Contract period.....25% payment

Maintenance during last half of Contract period and
removal of the devices.....50% payment

B2 Deductions

If the Contractor fails to properly install, remove sediment, or maintain storm drain inlet protection, the Contractor shall be subject to a \$500.00 per calendar day deduction for noncompliance. The deduction shall apply to each inlet that is out of compliance and shall be deducted from monies owed to the Contractor.

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D BLANK

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E Unit Prices

The Department will pay the following unit prices for temporary sediment control items in the absence of a Contract bid price:

- (1) Bale Barrier.....\$6.00/m (\$1.85 per linear foot)
- (2) Silt Fence, Heavy Duty.....\$10/m (\$3.00 per linear foot)
- (3) Flotation Silt Curtain, Type: Still Water, 1.2 m (4 foot) depth
..... \$52/m (\$16.00 per linear foot)
- (4) Sediment Trap Excavation
..... \$4/m3 (\$3.00 per cubic yard)
- (5) Bituminous Lined Flume
..... \$6/m2 (\$5.00 per square yard)
- (6) Silt Fence, type Machine Sliced
..... \$6.50/m (\$2.00 per linear foot)
- (7) Sediment Removal, Backhoe.....\$120 per hour
- (8) Filter Log, Type Straw Biolog.....\$1.00/m (\$3.00/foot)
- (9) Filter Log, Type Rock Log.....\$0.55/m (\$1.80/foot)
- (10) Flocculant Sock.....\$200 each

F Pay Items

Payment for temporary erosion control items will be made on the basis of the following schedule:

Item No.	Item	Unit
2573.501	Bale Barrier.....	meter (linear foot)
2573.502	Silt Fence, Type (1).....	meter (linear foot)
2573.504	Sandbag Barrier	square meter (square foot)
2573.505	Flotation Silt Curtain, Type (1).....	meter (linear foot)
2573.506	Sediment Trap Excavation.....	cubic meter (cubic yard)
2573.507	Temporary Pipe Downdrain	meter (linear foot)
2573.508	Bituminous Lined Flume.....	square meter (square yard)
2573.509	Diversion Mound.....	cubic meter (cubic yard)
2573.511	Sediment Mat.....	square meter (square foot)
2573.512	Temporary Ditch Check, Type (1).....	meter (linear foot)
2573.513	Temporary Ditch Check, Type (1)	cubic meter (cubic yard)
2573.520	Sediment Removal, Backhoe.....	hours
2573.530	Storm Drain Inlet Protection	each
2573.531	Storm Drain Inlet Protection.....	Lump Sum
2573.540	Filter Log, Type (1).....	meter (linear foot)
2573.541	Liquid Floc.....	cubic meter (gallon)
2573.542	Flocculant Sock.....	each
2573.543	Granular Floc.....	kg (lb)
2573.550	Erosion Control Supervisor.....	Lump Sum

Note: (1) Specify Type

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Controlling Erosion and Establishing Vegetation

2575.1 DESCRIPTION

This work shall consist of reducing the risk of soil erosion by: 1) providing temporary shaping and grading; 2) applying temporary soil covers; and 3) establishing a perennial ground cover. Temporary shaping and grading includes measures such as shaping to temporarily direct water flow, smooth-rough grading to allow for adequate installation of temporary erosion control materials, cat-tracking and other measures effective at reducing the soil erosion potential. The use of temporary soil covers includes but is not limited to, mulch, establishment of an annual vegetative cover, erosion control blanket and hydraulic soil stabilizers. Establishment of a perennial vegetative cover shall include soil tilling, liming, fertilizing, seeding, sodding, mulching, and any other work specified in conjunction therewith.

2575.2 MATERIALS

A Seed, mix as specified.....	3876
B Blank	
C Sod.....	3878
D Lime.....	3879
E Fertilizer.....	3881
F Mulch.....	3882
G Erosion Control Netting.....	3883
H Erosion Control Blanket.....	3885
I Hydraulic Soil Stabilizer.....	3884
J Compost.....	3890
K Blank	

L Erosion Stabilization Mat.....3888

2575.3 CONSTRUCTION REQUIREMENTS

A General.....Also refer to: 1701, 1716, 1717, 2105.5, 2573

The Contractor is responsible for minimizing soil erosion and preventing damage from sedimentation over the various stages of construction at all seasonal times during the year for the duration of the Contract by utilizing the best management practices established in 2573 in conjunction with the erosion control practices contained herein. The Contractor shall use other erosion control best management practices such as limiting the amount of exposed erodible soils, and providing horizontal cat track indentation to enhance the effectiveness of the sediment and erosion control devices. The Contractor shall protect slopes, ditch outlets, drainage outlets, and storm water discharge points from erosion in accordance with the time schedules established in the permit requirements.

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A1 Concurrent Critical Area Stabilization

The Contractor shall use the various methods provided in Section N- Rapid Stabilization, to temporarily stabilize disturbed areas within 61 m (200 feet) of surface waters as necessary for the duration of the Contract. The Contractor shall schedule, construct and/or install rapid stabilization measures in critical areas designated in the Contract or in accordance with permit requirements without having to obtain prior approval or having to be so directed by the Engineer.

A2 Spring and Fall Growing Seasons

The Contractor shall schedule and install temporary and permanent erosion control measures, finish earthwork operations, place topsoil, and establish turf in a continuous operation on an area by area basis to the fullest extent practical. The Contractor shall establish turf on the completed sections as required, without unnecessary delay and before weed growth or soil erosion occurs.

The dates for the season of planting for the various seed mixtures are listed in 2575-1. The Engineer may adjust a specified date by up to 10 days depending on prevailing weather conditions.

TABLE 2575-1

SEASON OF PLANTING Seed Mixture Number	Spring	Fall
100	---	Aug. 1 – Oct. 1
110	May 1 – Aug. 1	---
150, 190	April 1 - July 20.	July 20 – Oct. 20
240, 250, 260, 270	April 1 - June 1	July 20 - Sept. 20
280	April 1 – Sept. 1	---
310, 325, 328, 330, 340, 350	April 15 – July 20	Sept. 20 – Oct. 20

For the portion of Minnesota north of, and including TH 2, the Season of Planting for Mixtures 150 through 280 shall be April 15 through September 20.

A3 Summer Season

When the dates in the season of planting prohibit seeding of the specified seed mixture, the Engineer may specify an alternative seed mixture or temporary mulch may be placed and seeding be conducted at a later date.

A4 Early Winter Season

Early winter season work shall consist of the erosion control operations necessary to protect the site through the following spring snowmelt conditions. Early winter season is defined as the period where soil temperatures are such that seed will not germinate and normal plant rooting does not occur. The soil may be cold and friable, frozen or lightly snow covered.

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A4a Dormant Seeding

Dormant seeding shall be defined as seeding done on exposed cold soils so that normal seed germination does not occur until the following spring. Dormant seeding shall occur after October 20 and when soil temperatures at a depth of 25 mm (1 inch) are at or below 4 °C (40 °F).

In wind swept areas, exposed sites, and areas where dormant seeding does not typically establish well, temporary mulch may be ordered by the Engineer in lieu of dormant seeding.

Snow seeding shall be defined as seeding over the top of snow so that the seed melts through the snow and germinates upon warm up in the spring. Snow seeding can be done during the thawing days in February and March.

A4b Winter Mulching

Snow mulching shall be defined as mulch material spread over the top of snow so that the mulch melts through the snow and sticks to the site. All mulch materials listed under specification 3882 may be placed as snow mulching.

Frozen ground mulching shall be defined as mulch material spread over frozen ground. Mulch materials Type 4, 5, 6 and 9 that do not require disc anchoring into the soil may be placed without modification. Mulch Types 1, 7 and 8 may be anchored with Type 1 or Type 6 hydraulic soil stabilizers or may be "frozen" to the soil by applying water over the mulch. Applying water at the rate of 19 m³/ha (2000 gallons per acre) can be used as a direct substitution for disc anchoring.

A4c Dormant Sodding

The Contractor may place sod at locations at least 3 m (10 feet) from the shoulder, on slopes, and in ditches as dormant sodding after November 1 when all of the following conditions are met:

- (a) The Engineer authorizes dormant sodding.
- (b) The soil is prepared for sodding, either frozen or unfrozen.
- (c) The sod on slopes and in ditches is pegged or stapled.
- (d) The sod is watered to saturation immediately after placement.
- (e) The sod is watered a second time, or receives 25 mm (1 inch) of rain, 7 to 10 days after placement. The Engineer may also accept a heavy snowfall instead of the second watering.

A4d Winter Erosion Control Blanket Installation

Erosion control blankets may be installed over frozen ground. However, 150 mm (6 inch) long nails with washers can be used to anchor the blanket in lieu of staples.

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A4e Application of Commercial Fertilizer

Commercial fertilizer shall not be placed over frozen ground or snow. The application of fertilizer shall occur after the runoff from spring snowmelt has ceased.

B Grading Preparations Prior to Seeding

All washouts on the areas to be permanently seeded, sodded or have temporary erosion control materials installed shall be filled prior to the soil loosening operations. Topsoil shall be placed to the depths indicated in the Plans. Fill material shall be compacted sufficiently to provide reasonably uniform density in the upper soil layer to resist erosion. Drainageways shall be shaped and the soil loosened prior to placing sod or erosion control blankets.

B1 Grading Prior to Temporary Seeding or Erosion Control Installation

When installing erosion control materials in locations where the final topsoil grade has not be established, the Contractor shall provide smooth-rough grading to allow for adequate installation of erosion control materials and/or temporary seeding. The smooth-rough grading shall remove large clods of soil greater than 75 mm (3 inches) in diameter and ruts deeper than 75 mm (3 inches) and shall be incidental to the Project for which no direction compensation will be made.

B2 Tillage

Immediately prior to sowing the seed or placing sod, the Contractor shall loosen the soil to a minimum depth of 75 mm (3 inches) on all

areas except slopes steeper than 1 vertical to 2 horizontal, using disks, harrows, field diggers or other suitable cultivating equipment. All track imprints from wheeled or tracked equipment shall be tilled out of the soil surface. In compacted areas, the Contractor shall rip, use additional equipment, or other necessary measures to ensure proper soil loosening. On slopes the cultivating equipment shall be operated in a general direction at right angles to the direction of surface drainage wherever practical. The soil surface shall be left in a roughened condition with clods, lumps, and tillage ridges approximately 75 mm (3 inches) high left in place for maximum resistance to erosion. No additional loosening of the soil will be required on slopes steeper than 1 vertical to 2 horizontal, other than that obtained with the equipment used in removing vegetation or performing the finishing operations. Vegetation other than undesirable weeds shall be disked into the soil, cleared, or chopped up with a rotary or flail mower.

On all areas to be sodded, the Contractor shall prepare the soil surface as necessary to provide a reasonably smooth, moist, and evenly textured foundation. The soil shall be loosened to a minimum depth of 75 mm (3 inches) prior to sodding.

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C Applying Fertilizer and Conditioners

The Contractor shall apply fertilizers, compost, and liming materials, where specified, at the rates indicated in the Contract, using mechanical spreading devices to the fullest extent practical, and providing uniform distribution of the material over the designated areas.

Lime application rates specified in the Contract are based on 500 kg ENP per metric ton (1000 pounds ENP per ton) of Agricultural Liming Material. The actual lime application rate shall be adjusted to supply 500 kg ENP per metric ton (1000 pounds ENP per ton) of liming material.

The Contractor shall apply fertilizer, lime or compost prior to the seeding or sodding. The soil shall be tilled at least once, within 24 hours, following the application of fertilizer, lime or compost and prior to the seeding or sodding. Where fertilizer is required on sodding areas, it shall be applied prior to placing the sod. Where fertilizer is required on seeded areas, the time between fertilizing and seeding shall not exceed 48 hours.

When approved by the Engineer, the Contractor may use Grade 1 compost at an equivalent nutrient application rate in lieu of commercial fertilizer.

D Sowing Seed

The Contractor shall ensure that the seed is stored properly between the time of purchase and installation. Industry standards for seed storage are 50 degrees Fahrenheit and 50% humidity. The Contractor shall protect the seed from moisture until it is sown. Wet or moldy seed shall not be used.

The Contractor shall sow the seed uniformly at the rate of application specified in Table 2575-2.

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TABLE 2575-2

SEED MIXTURE APPLICATION RATES Seed Mixture Number	Application Rate (kg/ha)	Application Rate (pounds/acre)
100, 110	112	100
150	44.8	40
190	67.2	60
240	84	75
250	78.6	70
260	112	100
270	134.4	120
280	56	50
310	91.8	82
325	92.8	84
328	96.8	88
330, 340, 350	94.6	84.5

The Contractor shall sow seed on a prepared seedbed prior to applying mulch and as otherwise directed by the Plan or approved by the Engineer. The Contractor shall firm the seeded areas after seeding and prior to mulching. The soil firming shall be done with a drag, cultipacker, or other approved soil firming equipment. On slopes too steep to operate mechanical equipment, the seed shall be covered by hand raking or other approved means prior to mulching. Soil firming or seed covering shall be accomplished immediately after seeding.

On all seeding areas within 3 m (10 feet) of the shoulder, the Contractor shall seed and immediately firm the seedbed, mulch, and anchor the mulch as a continuous operation. Should the mulch application or mulch anchoring be delayed so that the seed or mulch becomes dislodged by traffic or wind, the affected areas shall be reseeded and remulched at no expense to the Department. On areas outside 3 m (10 feet) of the shoulder, no more seed shall be sown on any day than can be mulched within 24 hours. Should the mulch application be delayed more than 24 hours, the Engineer may order the area reseeded and remulched at no expense to the Department.

The Contractor shall not broadcast seed or hydroseed when the wind velocity exceeds 25 km/h (15 mph) or during gusts that would affect seed placement.

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D1 Temporary Seeding

Temporary seeding may be required on graded areas where the permanent seeding cannot be performed. For this purpose winter wheat, oats or other seed mixtures as determined by the Engineer will be used.

Topsoil covering may not be required for temporary seeding if the subsoil is reasonably suitable for plant growth, as determined by the Engineer. Soil preparation for temporary seeding shall be the same for permanent seeding except for areas such as stockpiles.

Temporary seeding shall be accomplished in accordance with Seeding of Traditional Mixes.

D2 Seeding Traditional Seed Mixes

Mixtures 100 through 280 inclusive shall be sown by means of mechanical or hydro spreading of the seeds at the specified rate of application. The use of hand operated mechanical spreaders will be permitted only on areas that are inaccessible to, or too small for, the specified equipment.

If a seed drill of the agricultural type is used, the drill shall be operated in a general direction at right angles to the direction of surface drainage, wherever practical, and the seed shall not be sown to a depth greater than 10 mm (3/8 inch). Small seed species such as timothy, alfalfa, white clover, red clover, etc., shall be sown through the grass seed attachment or by other approved means.

D3 Seeding Native Mixes

Native mixes (305-350) can be seeded with a native seed drill, a drop type seeder or a hydroseeder. The drill shall accurately meter the

types of seed to be planted and keep all seeds uniformly mixed during drilling. The drill shall be equipped with disk furrow openers and packer assembly to compact the soil directly over the drill row. Maximum row spacing shall be 200 mm (8 inches).

Depth of seed

placement shall be such to obtain a final planting depth of 3 to 10 mm (1/8 to 3/8 inch). In lieu of a drill with disc openers, a drop type seeder that is equipped with a fluffy seed box and a "Brillion type" soil packer assembly may be used. All drill seeding shall be done at a right angle to surface drainage. The Engineer may allow the use of a cyclone or spinner type seeder on small areas (0.4 ha (1 acre) or less) or on areas that are inaccessible to other equipment. The rate of application must be adjusted according to the percent Pure Live Seed (PLS) in the mixture combined with the bulk portion of seed mixture. The bulk seeding rate for PLS species is determined by the following formula:

Bulk Application (kg or lbs) = (kg or lbs. PLS)/(% PLS)

% PLS = % Germination x % Purity

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D4 Hydroseeding

When a hydroseeder is used, every effort shall be taken to obtain a uniform distribution over the seeded area. A tracer, 22.5 kg (50 pounds) of 3884 Type 5 or 6, shall be added to each 1.9 m³ (500 gallons) of water in the hydroseeder tank to visually inspect the uniformity of the seed application. The hydroseeder shall have continuous agitation action that keeps the seed mixed in the water slurry until pumped from the tank and the pump pressure shall be such that a continuous nonfluctuating stream is maintained. Flood type nozzles shall be used to the fullest extent possible along with sufficient water volume to obtain total ground coverage. During application the spray shall be directed to obtain a uniform material distribution as evidenced by a uniform wetting of the soil surface. If a non-uniform distribution results (such as skipped areas and saw tooth patterns), the affected areas shall be reseeded at no expense to the Department. The seed or seed/fertilizer mixture shall be emptied within 1 hour after the seed is added to the tank. Seed that is allowed to remain mixed with the fertilizer for a period longer than 1 hour will not be accepted for use and no compensation will be made for seed so rejected.

D5 Interseeding

Interseeding may be used for seeding into temporary mulched areas or for drilling additional seed into previously seeded areas. The interseeding drill shall contain trash rippers and at least two seed boxes, a fine seed box and a box for larger or fluffy seeds. The drill shall slice through the vegetative mat and make a 25 mm (1 inch) wide by 10 to 25 mm (3/8 to 1 inch) deep furrow into the underlying soil. The drill seed disk openings shall place seeds in the furrows. The drill shall drop the seed onto the ground surface from the fine seed box and place the large or fluffy seed to a final planting depth of 6 to 10 mm (1/4 to 3/8 inch).

D6 Permanent Seeding into Temporarily Mulched/Blanketed Areas

The Contractor shall permanently seed areas that have previously been temporarily mulched. Without additional tillage or site prep work, the Contractor may use an approved interseeding drill and drill seed directly into temporarily mulched or temporarily seeded areas. In lieu of using an interseeding drill, the Contractor may lightly disc the mulched areas and then conduct the seeding. Fertilizer shall be applied within 24 hours of interseeding or light disking. The Contractor shall leave existing cover in place as practical for its mulching value.

Seeding into previously placed erosion control blankets can be accomplished by attaching a hose to a hydroseeder and "blasting" a

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seed/water solution into the blanket. Blasting the seed/water solution shall be done from a distance of approximately 2 m (6 feet) away.

E Temporary Mulching

Temporary mulching shall be defined as placing mulch over broad large areas, generally 0.8 ha (2 acres) or more, to protect the overall site during the period of time when seeding cannot be performed. Temporary mulching shall be used to supplement other erosion control best management practices of establishing permanent vegetation or the rapid stabilization of critical areas within 61 m (200 feet) of surface waters. The provisions for temporary mulching may be used where the provisions for rapid stabilization (Section N) do not apply. In areas where temporary mulch is placed, the Contractor shall shape the area, loosen the soil as necessary, mulch and anchor the mulch.

F Applying Mulch

The Contractor shall spread mulch by mechanical means to provide a uniform distribution at the target application rate specified. When poor mulch distribution occurs, the Contractor will be required to remulch areas where coverage is too light and remove the excess where coverage is too heavy as determined by the Engineer.

The Contractor shall not operate mulch-blowing equipment on slopes that are too steep for the equipment or that cause rutting of the soil surface (slopes 1:4 and steeper). Blower attachments shall be used such that the mulch can be applied without having to traverse the slopes. The Contractor shall regrade, reseed and remulch slopes that are rutted up at the Contractor's expense.

F1 Type 1, 3, 7, and 8 Mulches

Wherever possible, Type 1, 3, 7, and 8 mulches shall be placed with blower equipment. The target rate of application shall be 4.5 metric tons (t) per hectare (2 tons per acre). The actual rate of application shall be as directed by the Engineer to match varying material or Project conditions so that approximately 10 percent of the soil surface is visible through the mulched areas.

F2 BLANK

F3 BLANK

F4 Type 4 Mulch

Type 4 mulch shall be applied as a dual operation with the Type 1 mulch blown on the soil surface at 3.4 metric tons per hectare (1 ½ tons per acre) and immediately over-sprayed with Type 5 hydraulic soil stabilizer at 840 kg/ha (750 pounds per acre).

Seeding and fertilizing shall be done prior to mulching, not in conjunction with Type 5 hydraulic soil stabilizer placement. Disk anchoring will not be required.

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F5 Type 5 Mulch

Type 5 mulch shall be applied at a rate of 150 m³/ha (80 cubic yards per acre) when specified as an erosion control material.

F6 Type 6 Mulch

The rate and application procedure for Type 6 mulch shall be as specified in the Plans or Special Provisions.

F7 BLANK

F8 BLANK

F9 Type 9 Mulch

The Contractor shall apply Type 9 (aggregate) mulch at a rate of application as stated in the Contract. Prior to placing the mulch, the Contractor shall uniformly compact and smooth the foundation, cover the foundation with a 150 µm (6 mil) plastic sheeting,

and then uniformly spread the aggregate mulch to the Plan thickness by a method that does not harm the foundation. The Contractor shall level the finished aggregate surface so that it is flush with adjacent areas. The plastic sheeting is an incidental cost to the completed work.

F10 Shoulder Mulch Overspray

Shoulder mulch overspraying shall consist of Type 1 Hydraulic Soil Stabilizer sprayed onto Type 1 mulch on a 1 meter (yard) wide strip

immediately abutting a gravel or paved shoulder. During placement, the Contractor shall seed, firm the seedbed, place Type 1 mulch, immediately disk anchor the mulch (if provided for in the Contract), and then uniformly overspray with, Type 1 Hydraulic Soil Stabilizer as a continuous operation. Wherever possible, the Type 1 Hydraulic Soil Stabilizer shall be sprayed with a distributor spray bar. Application rate for the Type 1 Hydraulic Soil Stabilizer shall be 220 kg/ha (200 pounds per acre). Shoulder mulch overspray will be for those areas designated in the Plans and will be paid for under the Type 1 Hydraulic Soil Stabilizer pay item.

G Disk Anchoring

Where provided for in the Contract, the Contractor shall anchor Type 1, Type 3, Type 7, and Type 8 mulches with a disk anchoring tool.

This equipment shall anchor the mulch by punching it into the soil to a depth of 50 to 75 mm (2 to 3 inches). Spacing between the blades or disks shall not exceed 200 mm (8 inches). The mulch shall be anchored immediately after placement unless otherwise authorized by the Engineer.

H Hydraulic Soil Stabilizers

H1 Type 1 Natural Tackifier

Natural tackifiers are added to water and applied by a hydrosprayer.

Natural tackifiers can be used by themselves, as an additive to other soil stabilizers, or as an overspray on mulched areas. When used as an

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additive to other soil stabilizers, they shall be added at the rate specified

by the manufacturer. When used as an overspray on mulched areas, they shall be applied at the rate specified by the manufacturer. During

placement, every effort shall be taken to obtain a uniform distribution over the target area.

H2 BLANK

H3 BLANK

H4 BLANK

H5 Type 5 and 6

Type 5 or 6 shall be applied with hydraulic spray equipment in a water-slurry at the rate of 2353 kg/ha (2100 pounds per acre).

For planning purposes, the approximate water to bale ratio is 475 L of water per 22.7 kg bale (100 gallons of water per 50 pound bale); however the actual water to bale ratio shall be in accordance with the manufactures recommendations. Using the color of the material as a

metering agent, the slurry shall be uniformly sprayed on the prepared seedbed. The Engineer may verify, by inspection of tank loading and spray application, that materials applied correspond with the application requirements within reasonable limitations.

H7 BLANK

H8 Type 8 Bonded Fiber Matrix (BFM)

Type 8 hydraulic soil stabilizer shall be applied with hydraulic spray equipment by a manufacturer's certified applicator. Seeding shall be done as a separate operation prior to the BFM application whenever possible. The combination of seed and BFM as a single operation will be allowed in small or inaccessible areas as determined by the Engineer. Installation rate shall be between 3300 and 4620 kg/ha (3000 and 4200 pounds per acre) depending on site characteristics as provided for in the plans. The general application rate shall be 3850 kg/ha (3500 pounds per acre). For planning purposes, the approximate water to bale ratio is 380 L/22.7 kg (100 gallons per 50 pound) bale; however the actual water to bale ratio shall be in accordance with the manufactures recommendations. In all cases 100% continuous ground

coverage shall be obtained. Application shall be done on dry soils (field capacity or less) and at least 24 hours in advance of projected rainfall to allow adequate drying time. The BFM shall be applied from at least two alternate directions, preferably 90 degrees apart, to ensure all soil surfaces are covered. For application rates of 3850 kg/ha (3500 pounds per acre) and above, the BFM shall be applied in two stages (one half rate each) with ample time between stages for the first application to dewater. BFM shall not be used in water bearing soils or by itself in ditch bottoms carrying concentrated flow. After the BFM soil stabilizer is applied and dries for 24 to 48 hours, the Engineer may sample and

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quantify a portion of the installation to ensure the minimum specified rate has been applied. If it is found that the specified quantity per acre has not been achieved, the Contractor shall apply an additional amount to equal the specified rate within 48 hours of receiving the test results. The Contractor shall not be paid extra mobilization costs for spraying additional material.

I Placing Sod

Before sod is delivered to the work site, the Contractor shall have all necessary equipment and forces available and shall have prepared the sodding areas sufficiently in advance in accordance with 2575.3B to avoid delays in placing the sod. The Contractor shall place sod according to the Plan and these requirements.

The Contractor shall place sod strips with staggered end joints and without stretching, in such a manner that all edges will firmly abut the edges of adjoining strips. In no case shall the sod be placed so loosely or under such tension that it will cover an area larger than the area from which it was originally lifted.

Joints between the sod and in-place improvements such as curbs, walks, and existing turf, shall abut tightly and shall be such that drainage will be conducted over the surface. Elsewhere, the outside edges of the sodded areas shall be rolled in or banked flush with soil, thoroughly compacted to form a flush surface as directed by the Engineer. The Contractor shall place the sod in such a manner that surface drainage along the boundary of the sodded area will not erode or undermine the sod.

The Contractor shall water and compress the sod into the soil by rolling or tamping while laying the sod or immediately after completing the sod placement on each area. The initial watering and rolling or tamping shall be sufficient to provide a firm contact and bond between the sod and the underlying soil and provide a smooth, even surface free of humps and depressions, but in no case shall the rolling or tamping result in excessive compaction. The Engineer may require the watering of areas to be sodded prior to the sod placement.

The Contractor shall repair damaged areas within 5 working days after completing the sod placement and rolling or tamping operations. This repair work shall include reseeding and mulching of any seeded or mulched areas adjacent to the sod. All waste sod, together with any stones or other debris removed from the sodding areas, shall be disposed of in a manner satisfactory to the Engineer.

The Contractor is responsible for successful establishment of the sod and shall replace or repair displaced or damaged sod during the maintenance period. The Contractor may peg or staple sod to prevent displacement.

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I1 Slopes

The Contractor shall carefully place sod strips from the bottom of the slope and progress upward. The sod shall be placed with the longitudinal axis of each strip at right angles to the slope. Staking or stapling may be required to prevent slumping or displacement of the sod. At the top of the slope, the sod must be trenched 75 mm (3 inches) into the topsoil on slopes steeper than 1V:4H.

I2 Ditch Bottoms

In ditch bottoms and other waterways where a concentrated flow of water is expected, the sod shall be placed so that the longitudinal axis of each strip is parallel to the direction of water flow in the main channel. The end of the strips will overlap a minimum of 100 mm (4 inches) with the upstream end on top of the downstream end. The sod will also be shingled and overlap a minimum of 75 mm (3 inches) on the sides of the strips. When shingled properly, the water will flow over, NOT under, from one roll of sod to the next. The uppermost strip of sod will have 75 mm (3 inches) of sod trenched into the topsoil on side-slopes steeper than 1:4.

The sod shall have netting material that is either incorporated into the rooting material of the sod during initial growth, or placed on the bottom of the sod mat at the time of harvest. Alternatively, Type 1 netting may first be secured in the ditch bottom followed by sod placement.

The sod shall be stapled once it has been put in place. All joints and outer edges of the sod shall be stapled at 0.9 m (3 feet) intervals or less. Staples shall be placed throughout the sod at a minimum spacing of 2 staples/m² (square yard). All staples shall be inserted flush with the ground surface.

J Placing Erosion Netting, and Blankets

J1 Erosion Control Netting

Netting placed in ditch bottoms, flumes or water courses shall be rolled out flat, parallel to the direction of water flow. Netting placed on cut or fill slopes shall be rolled out flat, parallel or perpendicular to the direction of water flow. The edges of adjacent strips shall overlap a minimum of 50 mm (2 inches) and a maximum of 100 mm (4 inches), with the net on the upstream side of any lateral water flow being on the top.

The netting shall be secured in place by means of wire staples driven reasonably vertical into the soil. The netting shall not be stretched prior to stapling. Staples shall be placed 1 m (3 feet) apart along the ends and edges of each strip. Additional rows of staples shall be placed parallel to the edge row of staples so that the distance

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between adjacent rows does not exceed 1 m (3 feet). Staples shall be placed 1 m (3 feet) apart within these rows. Where possible, staples

of adjacent rows shall be placed so as to form a sawtooth pattern.

J2 Erosion Control Blankets

The Contractor shall shape and prepare the site so it is free of large rocks, soil clumps or vehicle imprints that would prevent the blanket from lying flush to the surface contours. The Contractor shall place the blankets as specified in the Contract on the specified areas within 24 hours after sowing of the seed on that area.

The Contractor shall roll out or lay the blankets parallel to the direction of water flow, with the netting on top. For blankets with netting on two sides, the bottom side of the blanket shall show the majority of the thread stitching. The blankets shall be spread evenly without stretching, and so the fibers are in direct contact with the soil over the entire area. Adjacent strip edges shall overlap each other at least 102 mm (4 inches). Strip ends shall overlap each other at least 178 mm (7 inches). All overlaps shall be made with the upgrade strip placed over the down grade blanket strip. All overlaps for all Categories, excluding category 0, shall be stapled at ½ m (1 ½ foot) intervals.

At the top of slopes and the beginning of each blanket in ditch bottoms the Contractor shall bury the upgrade end of the blanket strip in a check slot. The check slot, or trench, shall be approximately 150 mm (6 inches) wide by 150 mm (6 inches) deep. The blanket end shall be inserted into the check slot such that the blanket is in contact with all three sides of the check slot. The blanket shall be stapled in the bottom of the trench every 0.3 m (1 foot). The check slot shall be backfilled and compacted. When a slope length is greater than 30 m (100 feet), a second check slot shall be dug perpendicular to the slope gradient one-third up from the bottom of the slope. The blanket shall follow the slope down into the check slot and back up to the slope gradient. This check slot shall also be stapled, backfilled and compacted.

Category 00 blankets shall be stapled on the edge of the blanket every 1 m (3 feet) and watered in to bond the blanket to the soil. All other blankets, excluding category 00, shall be anchored to the soil surface with evenly distributed staples through out the blanket at the rate specified in Table 2575-3. All staples shall be inserted flush with the ground surface.

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TABLE 2575-3

STAPLING OF BLANKETS

Slope (V:H)

Minimum Number of Staples per square meter (square yard)

Flatter than 1:2

1 (1.2)

1:2 – 1:1

1.4 (1.7)

Channel or Ditch applications

2.9 (3.5)

K Placing Erosion Stabilization Mats

The Contractor shall shape and prepare the site so it is free of large rocks, soil clumps or vehicle imprints that would prevent the Mat from lying flush to the surface contours. The erosion stabilization mat shall conform to the class shown in the Plan. All Erosion stabilization mats shall be soil filled.

The Contractor shall install the mat, seed, fertilize, place topsoil, and blanket all in one continuous operation. The Contractor shall roll out or lay the mat parallel to the direction of water flow. The mat shall be spread evenly without stretching, and so the fibers are in direct contact with the soil over the entire area. The beginning edge of each mat shall be buried and stapled in a check slot as described in K2. Adjacent strip edges shall overlap each other at least 102 mm (4 inches). The mat shall be stapled at a uniform density of 2.9 staples/m² (3.5 staples per square yard).

The mat shall be directly seeded and fertilized at ½ of the amounts specified in the Plan. On top of the seed and fertilizer, topsoil meeting the criteria of 3877 "Select Topsoil Borrow" that has been screened and pulverized shall be backfilled over the mat at a depth of 12-25 mm (½ - 1 inch). A sample of the topsoil shall be provided to the Engineer prior to installation. The remaining ½ of the seed mix and fertilizer shall be spread on top of the topsoil. The soil filled mat shall have a Category 4 blanket, meeting 3885 installed in accordance with K2 on top of the seeded topsoil to prevent erosion of the topsoil. No tracked equipment or sharp turns shall be made on the mat.

L Maintenance

L1 Sod

After the sod is placed and until it is accepted, the Contractor shall water and maintain sod in a condition satisfactory to the Engineer. The sod shall be cared for on a timely day by day basis. Watering and replacement of sod shall be accomplished as the need arises and without the Engineer having to so order.

The Contractor shall maintain the sod for 30 calendar days. The Engineer will then make the final inspection and consider acceptance of the sod.

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During the maintenance period, the Contractor shall promptly replace all sod that dries out to the point where it is presumed dead, and all sod that has been damaged, displaced, or weakened to the point where its replacement is necessary, or has become heavily infected with weeds. Areas replaced with new sod shall be maintained by the

Contractor for at least 20 calendar days after placement.

L2 Erosion Control Blanket and Erosion Stabilization Mats

The Contractor shall maintain the erosion control blanket installation for 30 days when specified in the Contract or when the Engineer allows erosion control blankets and seed to be substituted for

sod. All Erosion Stabilization Mats shall be maintained by the Contractor for 30 calendar days. Maintenance consists of thoroughly watering the blankets and mat systems immediately after placement (28 m³/ha (3000 gallons per acre)), with additional watering performed as necessary. Until acceptance, the Contractor shall be responsible for controlling erosion and establishing a permanent vegetative cover to the satisfaction of the Engineer. In the event of seeding failure or erosion during the maintenance period, the Contractor shall restore such areas at no additional cost to the Department.

L3 Sod Alternatives

When other products and methods are used in lieu of sod, the area shall be maintained by the Contractor ensuring the same outcome as a sodded area. Weeds shall be controlled and the maintenance requirements of specification 2575.3L2 shall apply.

L4 Mulch

When so directed by the Engineer, the Contractor shall, at any time before completion of the Project, remulch any areas on which the original mulch has eroded, washed away, or blown off, and reseed any areas on which the original seed has failed to grow, using the project seed mixture or one prescribed by the Engineer.

L5 Mowing and Weed Spraying

When the Contract includes items for mowing or weed spraying, the Contractor shall perform the specified work one or more times, wherever and whenever the Engineer directs, either on the areas seeded or sodded under the Contract. The equipment used shall not be so heavy that it causes soil slips or ruts on the slopes or in the ditches.

The Engineer may order weed spraying wherever heavy weed growth exists within the Right of Way. The weed spray mixture to be furnished and used shall be as provided in the Plans. The Contractor shall be responsible for performing the work at such time and in such a manner that will avoid spray drift outside the areas designated for spraying.

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L6 General

Until final inspection and acceptance of the work is made, the

Contractor shall use due care to protect the site during the time vegetation is establishing. Additional seed and mulch material used for reseeding and remulching and repairing damaged areas beyond the Contractor's control will be measured and paid for at the Contract

prices, provided the original work was performed satisfactorily in accordance with requirements.

M Turf Establishment, Lump Sum

Turf Establishment may be specified in the Plans as a lump sum bid item for establishing vegetation on small areas of 1 ha (2 ½ acres) or less per Contract. The lump sum item shall be considered to provide for restoring disturbed areas. Such work shall include tilling, fertilizing, mulching and establishment of vegetative cover. Under this provision the Contractor shall be responsible for controlling erosion and establishing a permanent vegetative cover to the satisfaction of the Engineer.

Unless otherwise specified in the Plans, the Contractor may establish vegetative cover by sodding or by seeding and mulching. If the Contractor elects to establish vegetative cover by seeding, seed furnished and placed shall consist of a mixture of desirable perennial grasses and legumes equivalent to that contained in 3876 for Mixture

250. Upon seeding, the areas shall be fertilized with 22-5-10 analysis

slow release fertilizer (see 3881.2) at 330 kg/ha (300 pounds per acre) and mulch equivalent to 3882, Type 1 shall be furnished and placed to prevent erosion and siltation. Acceptance of the areas by the Engineer will not be made until it is evident that the seed so placed has germinated and will establish an adequate protective cover. In the event of seeding failures, the Contractor will be required to correct and reseed such areas at no expense to the Department until adequate turf is established. When sod is used, the placement, maintenance, and acceptance shall be as specified in 2575.3.

N Rapid Stabilization

This work shall consist of operations necessary to rapidly stabilize small critical areas within 61 m (200 feet) of Surface Waters, to prevent off site sedimentation and/or to comply with permit requirements. The work shall be performed numerous times during the Contract and will be conducted on several small areas that may or may not be accessible with normal equipment. This work shall be done in accordance with the applicable details and locations shown in the Plan. The methods may be conducted independently or in combination. One or several locations may be stabilized by the Contractor per site visit per calendar

2575.3

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day. The number of locations stabilized per site visit or per calendar day will not justify an adjustment in the Contract unit price.

The materials required shall be as follows:

Method 1	Type 1 Mulch @ 4.5 metric ton/ha (2 tons per acre) Disc anchoring
Method 2	Type 1 Mulch @ 3.4 metric ton/ha (1.5 tons per acre) Type 5 Hydraulic Soil Stabilizer @ 840 kg/ha (750 pounds per acre)
Method 3	Type 6 Hydraulic Soil Stabilizer @ 160 kg/ 3.8 m³ of slurry mix (350 pounds per 1000 gallons of slurry mix) Seed mixture 190 @ 4.5 kg/3.8 m³ of slurry mix (10 pounds per 1000 gallons of slurry mix) Fertilizer 10-10-20 @ 22.7 kg/ 3.8 m³ of slurry mix (50 pounds per 1000 gallons of slurry mix) Water @ 3.3 m³/3.8 m³ of slurry mix (875 gallons per 1000 gallons of slurry mix) Note: 3 m³ (1000 gallons) of slurry mix will cover 0.067 ha

	(1/6 acre).
Method 4	Erosion Control Blanket Category 3 Seed mixture 190 @ 1.1 kg/100 m ² (2 pounds per 100 square yards) Fertilizer 10-10-20 @ 4.3 kg/100 m ² (8 pounds per 100 square yards)
Method 5	Rip Rap Class II Geotextile Type III

Method 1

Prior to placement the soil surface should be in a loose condition so that the mulch can be anchored. The mulch shall be placed to obtain approximately 90% ground coverage. Wherever possible, the mulch shall be placed by blower equipment. In inaccessible areas the mulch may have to be placed by hand. Immediately after placement, the mulch shall be anchored with a disc anchoring tool. The approximate area of coverage is 0.2-0.8 ha (½-2 acres).

Method 2

Prior to placement the soil surface should be in a loose condition. The mulch shall be placed to obtain approximately 75% ground coverage. Wherever possible, the mulch shall be placed by blower equipment. In inaccessible areas the mulch may have to be placed by hand. Immediately after placement, the mulch shall be over-sprayed

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with Type 5 Hydraulic Soil Stabilizer at a rate of 840 kg/ha (750 pounds per acre). The approximate area of coverage is 0.2-0.8 ha (½-2 acres).

Method 3

Rate of slurry application shall be variable depending on surface roughness, slope configuration and degree of undulation but it is expected that 56 m³ of slurry will be needed per hectare (6 M gallons per acre). This rate is equivalent to applying Type 6 Hydraulic Soil Stabilizer at 2353 kg/ha (2100 pounds per acre). Amount of material applied shall be such to obtain 100% soil surface coverage. In inaccessible areas, the mix may be pumped through a hose. The approximate quantity of coverage is 11.4-34 m³ (3000-9000 gallons) of slurry.

Method 4

The fertilizer, seed and erosion control blanket shall be placed as described in 2575.3. The upgrade end of each blanket strip shall be buried at least 150 mm (6 inches) in a vertical check slot. Staples shall be placed at seams and throughout the blanket at a maximum spacing in all directions of 0.6 m (2 feet). The approximate area of coverage is 75 – 650 m² (100 – 800 square yards).

Method 5

Rock and geotextile shall be placed in the areas and to the configurations as directed by the Engineer. The approximate quantities per Project visit are 9-18 metric tons (10-20 tons).

O Acceptance of Work

The Contractor shall notify the Engineer at least 24 hours in advance of beginning and also of changing turf establishment operations. The Contractor shall schedule working hours according to 1803. Work done without notification, without inspection according to 1511, or outside of the scheduled working hours without prior approval will be considered as unauthorized work. Turf establishment that is not verified by inspection in accordance with 1511 will be considered as unauthorized work.

O1 Seeding

The Engineer will generally accept permanent seeding in area increments once the seed has been properly placed in accordance with the specifications. After acceptance of seeding by the Engineer, the Contractor is relieved of responsibility for further maintenance and repair of the seeding and mulching performed on the area accepted, except for the repair of damages due to causes entirely within the Contractor's control.

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O2 Mulching

The Engineer will accept mulching 2 days after initial placement. Areas where the mulch has blown off or washed away during the 2 day period will be remulched at no expense to the Department.

O3 Sod

Upon satisfactory placement of the sod, the Engineer may authorize partial payment not exceeding 80 percent of the Contract bid price. The remaining percentage shall not become due and payable until expiration of the sod maintenance period, and then only as otherwise provided for in the Contract.

Upon expiration of the sod maintenance period on individual areas or sections of the Project, the Engineer will make an inspection of the work and will accept all sod that is in normal, healthy growing condition. No payment will be made for sod that is not in acceptable condition at the time of the final inspection an amount will be deducted from any moneys due or that may become due the Contractor equal to 100 percent of the Contract bid price per unit of measure of unacceptable sod. Sod that is

within 3 m (10 feet) of the shoulder or is directly abutting a roadway surface that is acceptably maintained, but dies out due to salt or winter maintenance activities beyond the Contractor's control, may be paid for at 100 percent of Contract price provided that the sod has been maintained for at least 20 calendar days prior to December 1.

O4 Erosion Netting, Blankets and Stabilization Mats

When maintenance is not specified in the Contract, the Engineer will accept blankets and erosion control netting and mats, at the time of acceptance of the sodding or seeding over which the materials are properly placed.

When maintenance is specified as an integral part of a erosion control blanket installation or stabilization mat the Engineer may authorize partial payment for the installation in an amount not exceeding 80 percent of the Contract bid price. The remaining percentage shall not become due and payable until final acceptance by the Engineer.

O5 Products Used in lieu of Sod

When other products or methods are used in lieu of sod, the Engineer may authorize partial payment not exceeding 80% of the substituted product price upon proper placement. The remaining percentage shall not become due and payable until the expiration of the maintenance period, and then only as acceptable to the Engineer.

O6 Hydraulic Soil Stabilizers

Hydraulic soil stabilizers, except for Type 8, will be accepted upon satisfactory placement. Acceptance of acres covered by Type 8 will be

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made by the Engineer when it is evident that the seed placed has germinated and will establish an adequate protective cover. In the event of seeding failures or erosion, the Contractor will be required to correct and reseed such areas at no expense to the Department until adequate vegetative cover is established. Upon proper placement of Type 8 the Engineer may authorize partial payment for the installation in an amount not exceeding 80% of the Contract bid price. The remaining percentage shall not become due and payable until final acceptance by the Engineer.

P Restoration

After acceptance of turf establishment in an area, the Engineer may order the Contractor to restore areas damaged by erosion and sedimentation that occurred beyond the Contractor's control. Restoration work consists of scarifying, grading, shaping, excavating, tilling, and any other operation the Engineer considers necessary to restore eroded areas and clean up sedimentation. Depressions and washouts resulting from erosion shall be shaped, filled with suitable material, and compacted to the satisfaction of the Engineer. Sedimentation shall be removed to the original grade or as necessary to properly restore the area as determined by the Engineer. Sediment removed shall be spread or disposed of to the satisfaction of the Engineer.

The Engineer will determine the seed, mulch, erosion blankets, and sod used in the restoration.

The Contractor will be compensated for restoration costs at the Contract unit prices. If no Contract unit prices are provided for in the Contract, the Contractor will be compensated for restoration costs as Extra Work. No compensation, however, will be made when the damage results from the Contractor's neglect or operations.

Q BLANK

R BLANK

S BLANK

T BLANK

U BLANK

V Workmanship and Quality Control

The Contractor is responsible for maintaining quality control on the project by ensuring that all work performed and all materials furnished are in conformance with the dimensions, installation requirements and material specifications shown in the Plans or indicated in the Specifications. Quality workmanship shall be used in all aspects of the work and shall be uniform in character throughout the project.

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W Workmanship Rework Schedule

Performance of the work shall be controlled by the contractor so that the materials installed and the workmanship practices are of good quality. When the quality falls below a threshold level defined in Table 2575-4, the contractor shall take immediate action to correct the situation and prevent it from reoccurring. As indicated in Table 2575-4 the contractor shall correct unacceptable workmanship to qualify for payment.

TABLE 2575-4

TABLE 2575-4

REQUIRED CORRECTIVE ACTION Item	Corrective action required when:
Seeding	Not uniform placement
Not seeded with drill when required	
Depth of seed incorrect	
No seedbed firming	
Incorrect rate of seed application	
Less than 76 mm (3 inches) tillage	
Not mulched within 24 hours	
Fertilizer and lime	Incorrect rate of application
Not uniform placement	
Not incorporated properly	
Mulch material, hydraulic soil stabilizer	Incorrect rate of application
Not uniform placement	
Rutting of slopes with equipment	
Erosion control blankets and mats	Inadequate soil loosening or preparation
Upgrade ends not embedded on slopes	
Improper overlaps and joints	
Insufficient number of staples	
Improper stapling pattern	
No embedment of joints in drainageways	
Turf establishment lumpsum	Erosion not controlled
Insufficient vegetative cover established	

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The above table pertains to a threshold level of workmanship only and does not pertain to the use of nonconforming materials. The disposition of nonconforming materials shall be in accordance with 1503. The Contractor at no cost to the Department shall perform any corrective actions required for acceptance of the work.

2575.4 METHOD OF MEASUREMENT**A Fertilizer**

Fertilizer will be measured by the weight of each kind furnished and applied. When a different analysis fertilizer than in the Plans, is used it will be converted to equivalent of planned fertilizer.

B Lime

Agricultural lime will be measured by the weight of material furnished and applied. Industrial Slag will be measured by mass on the same basis as Agricultural Lime.

C Seeding

Seeding will be measured by the area seeded, regardless of the seed mixture or quantity of seed used, and regardless of whether the seed was furnished by the Contractor or the Department. Areas reseeded by order of the Engineer, after the original seeding of the area was accepted, will be measured and added to the area originally seeded.

D Seed

The Engineer will measure seed by mass of each mixture or species except when pure live seed (PLS) is indicated. When PLS is indicated, the Engineer will measure the portion of the seed mixture by mass of PLS and add it to the mass of seed mixture specified as bulk mass.

E Mulch

The Engineer will measure:

- (1) Mulch material of Types 1, 3, 4, 7, and 8 by the mass of each type furnished and applied acceptably. Type 4 mulch shall consist of a measurement of Type 1 mulch and Type 5 hydraulic soil stabilizer.
- (2) Type 5 and 6 mulch material by volume (vehicular measure) of the material furnished and acceptably used.
- (3) Type 9 (aggregate) mulch by volume, based on the area of aggregate furnished and acceptably placed to the Plan thickness.
- (4) Additional mulch materials ordered by and then accepted by the Engineer in remulched areas will be added to the mulch quantities originally used and accepted.

F Water

Water used by order of the Engineer for establishment of areas covered with mulch will be measured by volume.

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G Disk Anchoring

Disk anchoring of Type 1, Type 3, Type 7 and Type 8 mulches will be measured by the area of mulch disked acceptably.

H Sodding

The Engineer will measure sodding that is acceptably installed and maintained by the surface area based on field measurement.

Where sod is authorized to be placed shingle-style, the overlapped portion of the sod will also be measured.

I Hydraulic Soil Stabilizers

The Engineer will measure Type 1 by the area acceptably covered taking into account the type of material used and the manufacture's recommended application rate. The Engineer will measure all other hydraulic soil stabilizers by the mass or weight of each type used. The Engineer may convert the mass or weight of material used to a square meter (square yard) basis.

J Lump Sum Turf Establishment

The item of turf establishment, lump sum will be considered to include all materials and labor as necessary to accomplish the work regardless of quantities involved. Measurement will be by lump sum unit, and under this provision, no measurement will be made of any individual turf establishment item.

K Erosion Netting, Blankets and Stabilization Mats

Erosion netting and blankets of each kind will be measured separately by the area covered. Overlapped portions will not be added additionally to the area measured.

Erosion Stabilization mats will be measured by the area covered. Overlapped portions will not be added additionally to the area measured. Seed, fertilizer, topsoil and blankets placed in conjunction with the erosion stabilization mat system will be measured separately.

L Mowing

Mowing will be measured by the area acceptably mowed.

M Weed Spraying

Weed spraying will be measured by the area acceptably sprayed.

N Weed Spray Mixture

Weed spray mixture will be measured by the volume of ingredients furnished and used.

O Blank

P Compost

Grade 1 compost will be measured by mass of material furnished and applied. Grade 2 compost will be measured by loose volume determined by vehicular measurement of material delivered.

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Q Rapid Stabilization

Method 1 and 2 will each be measured by the hectare (acre) acceptably installed. Disc anchoring or hydraulic soil stabilizer shall be considered incidental for which no direct payment will be made.

Method 3 will be measured by the cubic meter (M Gallons) of slurry furnished and acceptably placed. Seed, fertilizer, and hydraulic soil stabilizer shall be considered incidental for which no direct payment will be made.

Method 4 will be measured by the square meter (square yard) of blanket acceptably installed. Seed and fertilizer shall be considered incidental for which no direct payment will be made.

Method 5 will be measured by the metric ton (ton) of rock furnished and acceptably installed. Geotextile shall be considered incidental for which no direct payment will be made.

2575.5 BASIS OF PAYMENT

Payment for any of the turf establishment items at the Contract prices per unit of measure will be compensation in full for all labor, materials, equipment, and other incidentals necessary to complete the work as specified, including the costs of maintenance, replacement, and repair as required by the Contract.

A Erosion Control Items

Payment for erosion control blankets may include maintenance, when so specified. If no maintenance is specified, payment shall be compensation in full for all labor, materials, equipment, and other incidental items necessary for proper installation of the blankets. If maintenance is specified, payment shall also include the cost of watering, replacement, and repair as required by the Contract.

Payment for hydraulic soil stabilizers will be based upon

acceptance of the application by the Engineer. Payment for Type 1, 5, and 6 shall be compensation in full for all labor, materials, and

equipment, for proper installation of the materials. Type 8 shall be eligible for partial payment not to exceed 80% of the contract bid price upon satisfactory installation of the material. The remaining 20% shall be made available when final acceptance is made based on adequate vegetative cover and erosion control.

B Temporary Seeding

Interim seeding, and the application of fertilizer and mulch as required in conjunction therewith, will be paid for at the Contract prices

or, in the absence of a Contract bid price, according to the established unit prices, or in the absence of a Contract price and unit price, as Extra Work.

C Seed

Seed will be paid for by the mass of each mixture or species except
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when pure live seed (PLS) is indicated. When PLS is indicated on a portion of the seed mixture, payment will be made by mass of the PLS species plus the mass of the bulk portion of the seed mixture. Payment for seed not meeting germination and purity requirements of 3876 shall be subject to 1503. When components are missing from the specified mixture the affected seeded areas shall be reseeded with the correct mixture by the Contractor at no additional cost to the Department and a deduction of the value of the missing ingredients shall also be applied.

D Mulch

D1 Type 4 Mulch

Type 1 mulch and Type 5 hydraulic soil stabilizer will be paid for separately.

D2 Shoulder Mulch Overspray

Type 1 hydraulic soil stabilizer shall be paid for independent of the Type 1 mulch and disk anchoring or shoulder mulch overspray.

E Mowing and Weed Spraying

Payment for mowing and weed spraying at the Contract prices per unit of measure will be compensation in full for all labor and equipment employed in the work, and for all materials used, except that separate payment will be made for the weed spray mixture furnished and applied in conjunction with the item of weed spraying.

F Sod

Netted and stapled sod shall be paid at 150% of unnetted sod.

G Products in Lieu of Sod

Payment for products used in lieu of sod, that are not as labor intensive or do not require the same watering sequence as sod shall be paid for at 75 percent of the sod Contract price.

H Rapid Stabilization

Payment for the various items of work required for Rapid Stabilization will be made in accordance with the appropriate Contract bid price per unit of measure for each method specified. Such payment, in each instance, shall be construed to be compensation in full for all costs incidental thereto including mobilization.

I Unit Prices

The Department will pay the following unit prices for erosion control and vegetation establishment items in the absence of a Contract bid price:

(1) Additional tillage ordered by the Engineer before seeding interim mulched areas will be paid for at the same unit price as disk anchoring.

(2) Disk Anchoring \$75 per hectare (\$30 per acre)

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(3) Temporary Seed Mixtures

Mixture 100-110.....@ \$0.44 per kilogram (\$.20 per pound)

Mixture 150@ \$3.00 per kilogram (\$1.35 per pound)

Mixture 190@ \$2.75 per kilogram (\$1.25 per pound)

(4) Erosion Control Blanket Category 4

.....\$2.20 m2 (\$2.00/square yard)

(5) Rapid Stabilization Methods

Method 1\$900/ha (\$400/acre)

Method 2\$1235/ha (\$500/acre)

Method 3\$86/m3 (\$325/M gallon)

Method 4\$3.00/m2 (\$2.50/sq yd)

Method 5\$27/metric ton (\$25/ton)

(6) Water.....\$4.65/cubic meter (\$17.00/MGal)

J Payment Schedule

Payment for turf establishment and maintenance will be made on the basis of the following schedule:

Item No. Item Unit

2575.501 Seeding hectare(acre)

2575.502 Seed, Mixture ___, or (Species) kilogram(pound)

2575.505 Sodding Type..... square meter(square yard)

2575.511 Mulch Material, Type metric ton (ton)

2575.513 Mulch Material, Type cubic meter (cubic yard)

2575.519 Disk Anchoring.....hectare (acre)

2575.521 Erosion Control Netting square meter (square yard)

2575.523 Erosion Control Blankets, Category ____(1)

.....square meter(square yard)

2575.525 Erosion Stabilization Mat, Class____

..... square meter (square yard)
 2575.531 Fertilizer, Type ____ metric ton (ton)
 2575.532 Fertilizer, Type ____ kilogram (pound)
 2575.533 Agricultural Lime metric ton (ton)
 2575.535 Watercubic meter (M Gallons)
 2575.541 Mowing..... hectare(acre)
 2575.545 Weed Spraying hectare (acre)
 2575.547 Weed Spray Mixture.....liter (gallon)
 2575.550 Compost, Grade 2..... cubic meter (cubic yard)
 2575.551 Compost, Grade 1..... metric ton (ton)
 2575.555 Turf Establishment.....lump sum
 2575.560 Hydraulic Soil Stabilizer, Type ____.....kilogram (pound)
 2575.561 Hydraulic Soil Stabilizer, Type 1
 square meter (square yard)
 2575.570 Rapid Stabilization Method 1 or 2.....hectare (acre)
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 2575.571 Rapid Stabilization Method 3
cubic meter (M Gallons)
 2575.572 Rapid Stabilization Method 4
square meter (square yard)

2575.573 Rapid Stabilization Method 5.....metric ton (ton)

Note: (1) If maintenance applies, a subnote will be placed on the pay item shown in the summary of quantities in the Plan:
 "Includes Maintenance."

3861

Plant Stock

3861.1 SCOPE

This Specification covers trees, shrubs, vines, and perennials of various species and varieties suitable for roadside landscape planting. The term "plant" shall mean any or all trees, shrubs, vines or perennials specified.

3861.2 REQUIREMENTS

Unless otherwise specified as collected stock (wild or grown in other than nursery conditions) or Department-furnished transplants, all plants furnished shall be from nursery grown stock and shall bear evidence of proper nursery care during growth. Plants will not be considered to be nursery grown unless they have been growing in a nursery for at least 2 years.

The Contractor shall comply with the current edition of "Inspection and Contract Administration Guidelines for Mn/DOT Landscape

Projects," published by the Mn/DOT Landscape Architecture Unit, as the minimum and maximum criteria and standard for grading and accepting plant stock.

A Classification of Plants

Trees, shrubs, vines and perennials commonly used for landscaping purposes will be classified by species, variety, and size or age as indicated in the Contract.

When a dimensional size is specified in the Contract, it shall indicate the minimum range of height, stem caliper (diameter), or spread acceptable, as measured in accordance with standards in the current edition of "Inspection and Contract Administration Guidelines for Mn/DOT Landscape Projects."

B Blank

C Plant Names

All botanical and common names of plant materials specified shall be based on descriptions by Bailey in the latest edition of "Hortus Third."

D Plant Hardiness

All plant stock shall be deemed acceptable for hardiness if it is hardy to the Minnesota zone where the project site is located and:

- 1) Plant stock can be documented as continuously grown for at least the last two years within the acceptable limits shown on the Acceptable Plant Stock Growing Range Limits map in the Plan or
- 2) Plant stock, if grown outside the acceptable growing range limits, can be documented as having the seed source or root and graft stock originating from within the acceptable growing range limits.**3861.2 973**

Any questions regarding plant stock hardiness or botanical identification will be resolved by the Engineer.

E Previous Transplanting

All plants with the exception of seedlings, perennials, machine-transplants, and collected stock if specified, must bear evidence of previous transplanting or root pruning at least once during growth at the nursery. Trees from forest plantations are not acceptable, unless proper transplanting and root pruning has been practiced to develop compact and fibrous root systems suitable for transplanting success.

F Quality and Condition

A Certificate of Nursery Inspection by the Department of Agriculture of the State or origin, or valid copy thereof, shall be supplied as specified in 2571.2A2 (Plant Stock Documentation).

All plants shall be first-class representatives of their normal species or variety, and shall be free of disease, disfiguring knots, sun scald, insect infestations, dead or broken branches, bark abrasions, and other objectionable conditions.

All trees shall have reasonably straight trunks and shall be fully branched and symmetrical on all sides as characterized by natural habits of growth and proper nursery care. Shrubs shall be of strong bushy stock with well developed and formed stems, canes, or branches. Vines and perennials shall be strong healthy plants of the size or age specified.

All plants shall have strongly developed root systems of sufficient size to permit successful establishment and good growth, typical of the species or variety specified. The root systems of container grown plants shall be sufficiently developed to hold the soil intact upon removal from the container. Large root stubs and/or large circling or girdling roots shall be considered evidence of lack of proper care and root pruning, and shall be sufficient cause for rejection of nursery grown plants.

G Digging and Handling

All plants shall be dug and handled with reasonable care and skill as necessary to prevent damage to stems, roots, branches, and trunk.

Plants that are balled and burlapped (B & B) shall be dug in a manner that preserves a firm ball of undisturbed soil around the root system. Plants shall conform to the recommended balling and burlapping specifications set forth in the current edition of "Inspection and Contract Administration Guidelines for Mn/DOT Landscape Projects."

Balled and burlapped plants shall be wrapped and bound so that the soil ball will remain intact and solid while being handled, shipped, and planted. Handling shall always be by the soil ball and not by the plant's branches or trunk. The use of wire baskets in conjunction with furnishing, loading, or planting balled and burlapped plants will be **3861.2 974**

permitted; however, restrictions of 2571.3F (Installation of Plants) shall apply.

H Packing and Shipping

All plant material shipments shall comply with the nursery inspection and plant quarantine regulations of the States of origin and destination as well as with Federal regulations governing interstate movement of nursery stock.

All plants shall be true to name, and each bundle, bale or individual plant shall be legibly and securely labeled with the names and sizes of each species or variety and with the quantity contained in the individual bundles, boxes or bales.

All plants shall be packed and shipped as necessary to ensure arrival at the planting site in good condition. From the time plants are dug and until delivered to the planting site, the roots shall be protected at all times against drying-out, by covering the root systems with a suitable moisture-holding material. They shall also be adequately protected against other damaging climatic conditions such as sun, wind, and freezing temperatures. When transported in closed vehicles, the plants shall have adequate ventilation to prevent unwanted sweating.

3861.3 SAMPLING AND INSPECTION

The plants shall be subject to inspection by the Engineer prior to planting, but such inspection shall not be considered as final acceptance. Final inspection and acceptance or rejection of plant stock shall be at the Project planting site.

All plants shall be in good condition upon delivery. Plants delivered with broken or bruised branches, stems, or canes will be rejected unless the damaged growth can be removed through pruning and without losing their symmetry or being trimmed to an unacceptable size. Balled and burlapped plants delivered with broken or disturbed balls, indicating the soil has been so loosened as to cause stripping of the small and fine feeding roots, will be rejected. Bare root plants shall be delivered in a dormant condition and should be installed while in a dormant condition. The Engineer may authorize installing plants that have broken dormancy, however, if authorized, the installation will be at the Contractor's own risk, and the initial planting operations payment for these plants will be withheld until they are determined to be initially acceptable after the first year of plant establishment. The Engineer may inspect up to three balled and burlapped or container plants, of each variety delivered to the planting site, at random and inspect for condition and size of the root system. This may include pulling back the burlap and wire basket or removing containers. Any plants that become unsuitable for planting due to inspection shall be replaced by the contractor without any compensation. **3876.2 975**

During the spring planting season, coniferous plants that have candled out (put out new growth) while being stored in a holding bin may be planted, however, coniferous plants that are dug after candling out will be rejected. Coniferous trees not fully branched from bottom to top and those that have been heavily sheared or pruned will be rejected. Only unsheared or lightly sheared conifers (those that have not been sheared within the last growing season and display buds or growth at the terminal ends of branches) shall be accepted. Pine trees shall have a terminal leader bud and terminal leaders shorter than 500 mm (**18 inches**) in length. A new central leader must be trained in conifers delivered with multiple or missing leaders.

Plants not conforming to dimensional requirements will be rejected. In measuring the height of coniferous trees of the pine, spruce and fir species, the upper limits shall be the midpoint of the terminal leader.

All rejected plants shall be removed from the Project by the Contractor and shall be replaced with acceptable plants of the required species and variety, unless otherwise directed by the Engineer.

3876

Seed

3876.1 SCOPE

This Specification covers introduced grass/legume and native grass and forb seeds used for planting to provide vegetative cover.

Pure live seed (PLS) is the percent of seed germination plus dormant and/or hard seed times the percent of seed purity of each species.

3876.2 REQUIREMENTS

A General Requirements

All seed shall conform to the latest seed law of the State, including Those governing labeling and weed seed tolerances. Tolerances for Germination and Purity, as determined by the Department of Agriculture, shall only apply to seed that has been previously tested and

approved by the Department of Agriculture as a seed lot. Test for germination and viability shall have been made within 9 months of the date of installation.

All legume seed, including native legumes, shall have been pre-inoculated with the proper bacterial culture for the species being inoculated and with the bacteria culture designed for this purpose (pre-inoculation), in the manner and within the time specified by the manufacturer.

All native grass and forb seed shall be of current production seed or harvested from the previous two growing seasons. **3876.2 976**

All sedge, rush and forb seed that requires special pregermination treatment such as cold moist stratification shall be so treated prior to installation.

All wild-type native grass and forb seed shall have a source of origin within Minnesota, eastern North Dakota, eastern South Dakota, northern Iowa, or western Wisconsin.

Origin certified seed shall have originated within the regions specified above and shall be accompanied by the appropriate Quality Mark documentation from the Minnesota Crop Improvement Association to verify this.

Wild-type is defined as seed that is derived directly from native, wild stock; including seed that was collected in the wild and placed into production or that which has been harvested directly from native stands. Wild-type varieties are regional or local ecotypes that have not undergone a selection process. Wild-type refers to all native seed referred to as "common" in the industry.

Origin certified seed that is "yellow tag" is by definition wild type that has originated within a specified geographic region.

Native species requiring certification for origin shall have their origin documented by the Minnesota Crop Improvement Association (MCIA). This level of certification is at the "yellow tag" (YT) level according to the MCIA Quality Control program. Documentation for origin certification of native seeds shall accompany all shipments and shall be identified on the tags as well.

All native grass, sedge, rush and forb seed shall be either origin certified or wild-type. Origin shall be clearly identified on the seed label for all seed, including native forbs.

Use of varieties not listed herein will be considered unacceptable and will be subject to 1503.

B Requirements for Native Grasses, Sedges, Rushes

The Contractor shall supply and plant native grass as pure live seed (PLS). If the listed varieties are not available from the Approved

Vendor or Source list on file with the Mn/DOT Erosion Control unit, other varieties may be substituted only by obtaining approval of the Engineer and the Erosion Control unit. The Contractor shall provide documentation of substitutions prior to acceptance. Germination values shall include not more than 20 percent dormant seed, except for wetland sedges, rushes and grasses for which up to 80% dormancy shall be allowed.

All native grass seeds that contain awns or excessive hairs shall be cleaned and de-bearded prior to their inclusion into mixtures.

3876.2 977 TABLE 3876-1

NATIVE GRASS REQUIREMENTS GERMINATION, PURITY, AND ACCEPTABLE VARIETIES

Trade Name	Scientific Name	Acceptable Origin & Varieties	Purity Min. %	Germ. Min. %
Bluestem, big	<i>Andropogon gerardi</i>	MN Certified (YT), Bison	85	70
Gramma, sideoats	<i>Bouteloua curtipendula</i>	MN Certified (YT)	85	70
Gramma, blue	<i>Bouteloua gracilis</i>	MN Certified (YT), SD, ND wild-type	80	70
Brome,	<i>Bromus</i>	MN	85	70

fringed	<i>ciliata</i>	Certified (YT), MN, MT, Canada wild-type		
Brome, Kalm's	<i>Bromus kalmii</i>	MN Certified (YT), MN wild-type	85	70
Hairy wood chess	<i>Bromus purgans</i>	MN Certified (YT)	85	70
Buffalo grass	<i>Buchloe dactyloides</i>	MN Certified (YT), MN, ND, SD, NE wild-type	85	70
Blue-joint grass	<i>Calamagrostis Canadensis</i>	MN Certified (YT), MN wild-type	85	70
Sedge, bottle-brush	<i>Carex comosa</i>	MN wild-type	85	60
Sedge, tussock	<i>Carex stricta</i>	MN wild-type	85	60
Sedge, fox	<i>Carex vulpinoidea</i>	MN wild-type	85	60
Wild rye, Canadian	<i>Elymus canadensis</i>	MN Certified (YT)	85	70
Bottle brush grass	<i>Elymus hystrix</i>	MN wild-type	85	70
Wheat grass, slender	<i>Elymus trachycaulus</i>	MN Certified (YT), MN, ND, SD, Canada wild-type, Revenue	85	70
Wild rye, Virginia	<i>Elymus virginicus</i>	MN Certified (YT), MN, WI, IA wild-type	85	70
Wheat grass, western	<i>Elytrigia smithii</i>	MN Certified (YT), MN, ND, SD wild-type	85	70
Manna grass, reed	<i>Glyceria grandis</i>	MN Certified (YT), MN wild-type	85	70
Manna grass, fowl	<i>Glyceria striata</i>	MN Certified (YT), MN wild-type	85	70

Common rush	<i>Juncus effusus</i>	MN Certified (YT), MN wild-type	85	60
June grass	<i>Koeleria macrantha</i>	MN Certified (YT), MN, ND, SD wild-type	85	70

3889

Temporary Ditch Checks

3889.1 SCOPE

This Specification covers temporary ditch checks used for slowing water velocity and temporarily containing sediment in ditch bottoms. **3889.2** 1024

3889.2 REQUIREMENTS

Temporary ditch checks shall conform to the requirements for the following types, as specified in the Contract.

A Type 1: Sliced in Silt Fence

Type 1 ditch check shall meet the requirements of 3886-silt fence-machine sliced with a maximum 1.2 m (**4 foot**) post spacing.

B Type 2: Bioroll

Type 2 ditch checks shall consist of 3987 Type 2 Storm Water Filter Logs.

C Type 3: Bioroll Blanket System

Type 3 ditch checks shall consist of two components; Type 2 or 3 Storm Water Filter Log in accordance with 3897, staked on top of a Category 3, specification 3885 erosion control blanket. The blanket shall form a minimum width of 3.7 m (**12 feet**) perpendicular to the ditch gradient.

D Type 4: BLANK

E Type 5: Rock Weeper

Type 5 ditch checks shall be composed of a geotextile liner, coarse concrete aggregate, and riprap. The geotextile filter fabric liner shall be in accordance with 3733 Type IV. The coarse concrete aggregate forming the front half of the weeper shall be in accordance with 3137-1 CA-1. The riprap forming the back half of the weeper shall be in accordance with 3601, Class I and be composed of 100 percent crushed or quarry run material.

The rock weeper shall be created such that the side profile forms a triangle with 1:2 (V:H) slopes on both the front and back slopes. The coarse concrete aggregate shall be installed on the front half of the triangle with a 1:2 slope to a height of 0.6 m (**2 feet**). The riprap shall be installed on the back half of the triangular section.

F Type 6: Geotextile Triangular Dike

Type 6 ditch checks shall be triangular shaped having a height of at least 200 mm – 250 mm (**8-10 inches**) in the center with equal sides and a 400 mm – 500 mm (**16-20 inches**) base. The triangular shaped inner material shall be urethane foam. The outer cover shall be a woven geotextile fabric placed around the inner material and allowed to extend beyond both sides of the triangle 0.61-0.91 m (**2-3 feet**). Length of each section shall be 0.91-2.1 m (**3-7 feet**). Standard length shall be 2.1 m

(**7 feet**) unless otherwise indicated in the plans.

G Type 7: Rock Check

Type 7 ditch checks shall be composed a geotextile liner and riprap. The geotextile filter fabric liner shall be in accordance with 3733 Type IV. The riprap shall be in accordance with 3601, Class I-IV, as **3890.2** 1025

specified in the Contract, and be composed of 100 percent crushed or quarry run material. Riprap shall be configured in a trapezoidal shaped berm with respect to the side profile such that the bottom of the berm is approximately 1.5 m (**5 feet**) wide, the top of the berm is approximately 0.6 m (**2 feet**) wide, and the height of the berm is approximately 0.6 m (**2 feet**) deep.

3889.3 SAMPLING AND TESTING

Samples for testing shall be of such size and numbers as requested by the Engineer.

3891

Storm Drain Inlet Protection

3891.1 SCOPE

This specification covers materials used for temporarily protecting storm drain inlets that are either constructed during the Project or exist prior to the Project, from sedimentation during construction activities. For purposes of this specification storm drain inlets are defined as manholes, catch basins, curb inlets and other drop type inlets that provide for the ingress of surface water into underground drainage systems.

3891.2 TYPES

Types of storm drain inlet protection to be provided shall be as follows:

Inlet protection to be utilized in median areas, field inlets and other areas where vegetation will ultimately be established.
Inlet protection to be utilized in and adjacent to streets, parking lots and other areas that will ultimately be paved.

3891.3 APPROVED MATERIALS

In addition to the Approved Products List, approved materials that can be furnished for use are as follows:

A Rock Log

Rock logs shall meet the requirements of 3897.2 Type 7.

B Compost Log

Compost logs shall meet the requirements of 3897.2 Type 5.

C Sediment Control Inlet Hat

Sediment control inlet hats shall be a polyethylene hat-like structure covering the inlet with small weep holes on the side providing a filtering function of the storm water runoff and a large opening above the weep holes for emergency overflow.

3891.3 1029

D Silt Fence Ring and Rock Filter Berm or Rock Log

Combination

Silt fence shall meet the requirements of 3886 Type Heavy Duty. Silt fence shall be placed in a circular configuration around the inlet to form a minimum 1.5 m (**5 foot**) diameter zone of protection. Rock logs (3897.2 Type 7) shall line the outside toe of the silt fence. Rock Filter berms shall consist of 3882 Type 9 Mulch, at the Silt Fence toe, as indicated on the Plans.

E Pop-up Head

Pop-up head inlet protection shall form a solid steel plate over the inlet casting or solid steel box that fits inside a grate assembly with the exception of a center cylindrical drain tube riser. The tube riser shall be fully extended when providing drainage functions and have holes that provide filtering capabilities. The tube riser shall be covered with a removable knit type geotextile that provides additional sediment filtering capabilities. The tube riser shall be able to be pushed down flat to the steel plate to allow construction vehicles to drive over it, facilitate cleanout, or to shut off drainage to the inlet.

F Filter Bag Insert

Filter bag insets shall consist of a replaceable reinforced filter bag suspended from a retainer ring, or frame that fits within a grate or it shall consist of a geosynthetic filter bag suspended from a rebar or steel rods. The filter bag that is suspended from a frame shall be constructed of a polypropylene filter geotextile fabric with a minimum weight of 222 g/m² (**4 ounce/square yard**), a minimum flow rate of 5908 L/minute/m² (**145 gallon/minute/square feet**), a minimum permittivity of 2 per second, and designed for a minimum silt and debris capacity of 0.57 m³ (**2 cubic feet**). The filter bag shall be reinforced with an outer polyester mesh fabric. The filter bag shall be suspended from a galvanized steel ring or frame utilizing a stainless steel band and locking clamp. The frame shall be designed with an overflow feature. Overflow capacity shall be at a minimum equal to the design flow capacity of the structure's grate opening.

When the filter bag insert is the type suspended from the grate the geosynthetic fabric shall meet 3886 for Machine Sliced and a minimum silt and debris capacity of 0.57 m³ (**2 cubic feet**). All edges, seams shall be minimum double stitched. The Filter bag insert shall have an oval, edge heat sealed overflow 10 by 15 mm (**4 by 6 inches**) holes cut into all four panel sides.

G BLANK

H BLANK

I BLANK 3891.3 1030

J BLANK

K Other

Devices approved by the Department's Erosion Control Engineering Unit and on file on the web under the Materials Engineering Section's Approved Products List can be furnished as meeting this specification requirement.

3891.4 REQUIREMENTS

Dimension requirements will be as indicated in the Plans.

3891.5 SAMPLING AND TESTING

Sampling and testing samples shall be furnished in the size and number directed by the Engineer.



MEMORANDUM OF UNDERSTANDING
to establish a
REGIONAL STORMWATER PROTECTION TEAM (Feb 2004)

A. INTRODUCTION

This Memorandum of Understanding (MOU) formalizes coordination of the Regional Stormwater Protection Team (RSPT), an information networking task force of agencies and jurisdictions including, but not limited to the signatory entities listed on page three.

The RSPT mission is to protect and enhance the region's shared water resources through stormwater pollution prevention by providing coordinated educational programs and technical assistance. Team members are committed to preventing and resolving issues of mutual concern for environmental protection on a regional watershed scale. This commitment is reinforced by policies internal to each agency. To sustain long-term commitment, the signatories agree to establish and implement the Interagency Stormwater Pollution Prevention Initiative described herein.

The goals of this initiative are to foster stormwater pollution prevention as the preferred environmental protection strategy within local and state agencies and to support and promote similar efforts within the private sector and at the community level. Benefits of working together include offering a focal point for pollution prevention, reducing expenses by sharing knowledge and resources, minimizing duplication of effort and increasing grant application success, all of which will help significantly enhance the protection of Lake Superior, the Duluth-Superior Harbor and all their tributaries.

In the spirit of these objectives, the agencies represented by the signatories on this document agree to maintain a cooperative working relationship to promote stormwater pollution prevention.

This MOU does not create enforceable legal obligations, but rather is an expression of intent by the signatories to work with one another as partners to reduce stormwater pollution.

Nothing in this agreement is intended, nor shall it act in any way to alter, impede, or interfere with the authorities and procedures of the agencies involved in carrying out their regulatory and law enforcement responsibilities or their individual missions.

B. PURPOSE

Through this document, the members of the Regional Stormwater Protection Team establish a common agenda to work together on pollution prevention objectives and specific goals in a cost effective and consistent manner. Successful implementation of this collaboration effort will help to:

- Incorporate stormwater pollution prevention measures into local jurisdiction and agency programs and planning;



- Avoid a piecemeal approach to stormwater pollution prevention and program development;
- Share resources for stormwater pollution prevention projects;
- Enhance efficiency in the delivery of prevention services;
- Provide consistent regional environmental messages;
- Improve communication and interrelationships between agencies and local jurisdictions;
- Support existing agency missions and partnership agreements;
- Reduce stormwater peak flows and pollutant loads within the Western Lake Superior Watershed.

C. AREAS OF AGREEMENT:

The signatories agree to promote stormwater pollution prevention and pursue issues of mutual concern. In particular, the parties will strive to:

1. Seek opportunities to collaborate on stormwater pollution prevention projects of mutual interest, to demonstrate pollution prevention technologies and techniques.
 - a) Stage periodic environmental show and tell events,
 - b) Develop educational materials and co-sponsor workshops focused toward specific audiences,
 - c) Develop an information clearinghouse,
 - d) Identify areas where policies conflict and may need to be revised to achieve goals,
 - e) Develop collaborative grant proposals.
2. Share, exchange and learn stormwater pollution prevention technologies and techniques through periodic meetings and joint training programs.
 - a) Share strategies and progress in implementation,
 - b) Provide relevant technology updates,
 - c) Participate in environmental roundtable discussions,
 - d) Share innovative ideas.
3. Demonstrate watershed-wide environmental leadership in stormwater pollution prevention.
 - a) Promote stormwater pollution prevention through press releases and other interpretive programs conducted by participating agencies,
 - b) Enhance watershed-wide efforts to increase communications and education about the importance of stormwater pollution prevention.
4. Seek opportunities to eliminate or reduce stormwater pollution and encourage use of efficient pollution prevention technologies and techniques.
 - a) Identify root causes of stormwater pollution and take steps to reduce or eliminate wastes through stormwater pollution prevention techniques,
 - b) Identify and overcome barriers to adoption of stormwater pollution prevention practices,
 - c) Educate the general citizenry about stormwater pollution prevention through formal and informal education.
5. Cooperate in evaluating stormwater pollution prevention.
 - a) Evaluate needs and goals of participating agencies,
 - b) Determine what information is required to meet goals and needs,



- c) Measure progress in reducing stormwater pollution.
6. Develop and demonstrate environmentally benign and beneficial alternatives to current non-sustainable practices.

D. ORGANIZATION STRUCTURE (see Attachment A)

Each participant shall designate at least one contact to monitor pollution prevention coordination activities within their singular jurisdiction. These individuals shall provide input to the RSPT on the initiative. The RSPT will oversee the development and implementation of the interagency initiative to facilitate communication and coordination on stormwater pollution prevention.

The RSPT meets regularly. All ideas are encouraged and welcome. Appropriate projects, workgroup formations, and courses of action are determined by a consensus of the members.

E. CHANGES TO THE AGREEMENT:

Amendments or additional appendices may be developed and implemented by mutual written agreement of the signatories at any time without renegotiating the entire MOU. A party may also terminate its participation in this agreement after providing 30 days written notice to the other parties.

F. EFFECTIVE DATE OF AGREEMENT:

This agreement is effective April 1, 2004 and will remain in effect for all parties unless and until they choose to formally terminate.

G. SIGNATORIES

_____ Herb Bergson, Mayor	_____ City of Duluth	_____ Date
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_____ Richard Kieren, Mayor	_____ City of Proctor	_____ Date
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_____ David Allen, Mayor	_____ City of Hermantown	_____ Date
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_____ Dave Ross, Mayor	_____ City of Superior	_____ Date
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Marcus Hall,
Public Works Director

St. Louis County

Date

George Sundstrom,
Chairperson

Duluth Township

Date

Earl Elde,
Chairperson

Midway Township

Date

George Andrews,
Chairperson

Rice Lake Township

Date

Todd Campbell,
District Hydraulics Engineer

MN Dept. of Transportation

Date

Suzanne Hanson,
Duluth Manager

Minnesota Pollution Control Agency

Date

Sue O'Halloran,
Water Quality Specialist

Lake Superior Research Institute
University of WI, Superior

Date

Greg Fox,
Vice Chancellor Finance & Operations

University of MN-Duluth

Date

R.C. Boheim,
Manager

South St. Louis Soil and Water
Conservation District

Date



Kurt N.W. Soderberg, Western Lake Superior Sanitary Dist.
Executive Director

Date

Robert B. Peacock, Fond du Lac Reservation Business
Chairman Committee

Date

Carl Richards, University of MN Sea Grant
Director

Date

Lucinda Johnson, Center for Water and the Environment
Associate Director Natural Resources Research Institute
University of Minnesota-Duluth

Date

Duane Lahti Wisconsin Department of Natural
Resources

Date

Lynelle Hanson St. Louis River Citizens Action
Committee

Date



Attachment A

BY-LAWS

Regional Stormwater Protection Team Operational Structure

The Regional Stormwater Protection Team shall work in the following areas:

- I. Data collection and analysis
 - A. Develop and maintain regional audiences' mailing lists and list of groups, organizations and trade associations.
 - B. Develop and maintain a measurement system that analysis and assays outreach and communication efforts.
- II. Outreach
 - A. Develop a joint stormwater pollution prevention message and share it with companies, organizations, associations and the general citizenry.
 - B. Develop and maintain educational materials to achieve awareness and compliance on a cooperative basis from citizens and businesses.
- III. Communication
 - A. Meet monthly to discuss stormwater pollution prevention issues facing the region.
 - B. Communicate status of local, regional, state or national activities.
 - C. Communicate on the status of specific regulatory decisions to the extent such decisions affect development of a regional stormwater pollution prevention management system.
 - D. Develop technical assistance roundtable discussion groups.
 - E. Share information about current and planned written materials.
 - F. Develop additional relationships with related groups and organizations.
- IV. Organization
 - A. Chairperson: This position will serve no less than 12 months and is responsible for organizing and leading meetings.
 - B. Vice Chair: This position will serve no less than 12 months and will prepare to serve as chair for the following 12 months.
 - C. Fiscal Agents: Fiscal Agents identified in each successful grant application will prepare and present periodic fiscal statements to the Team.
finances.
 - D. Note taker: This position will serve on a monthly basis and is responsible for keeping and distributing meeting minutes.